

World report on the health of refugees and migrants



Health for all,
including
refugees and
migrants:
**time to
act now**

World report on the health of refugees and migrants

World report on the health of refugees and migrants

ISBN 978-92-4-005446-2 (electronic version)

ISBN 978-92-4-005447-9 (print version)

© World Health Organization 2022

Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo>).

Under the terms of this licence, you may copy, redistribute and adapt the work for non-commercial purposes, provided the work is appropriately cited, as indicated below. In any use of this work, there should be no suggestion that WHO endorses any specific organization, products or services. The use of the WHO logo is not permitted. If you adapt the work, then you must license your work under the same or equivalent Creative Commons licence. If you create a translation of this work, you should add the following disclaimer along with the suggested citation: “This translation was not created by the World Health Organization (WHO). WHO is not responsible for the content or accuracy of this translation. The original English edition shall be the binding and authentic edition”.

Any mediation relating to disputes arising under the licence shall be conducted in accordance with the mediation rules of the World Intellectual Property Organization (<http://www.wipo.int/amc/en/mediation/rules/>).

Suggested citation. World report on the health of refugees and migrants. Geneva: World Health Organization; 2022. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at <http://apps.who.int/iris>.

Sales, rights and licensing. To purchase WHO publications, see <http://apps.who.int/bookorders>. To submit requests for commercial use and queries on rights and licensing, see <https://www.who.int/copyright>.

Third-party materials. If you wish to reuse material from this work that is attributed to a third party, such as tables, figures or images, it is your responsibility to determine whether permission is needed for that reuse and to obtain permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

General disclaimers. The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by WHO to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WHO be liable for damages arising from its use.

Contents

	Foreword	vii
	Preface	ix
	Acknowledgements	xi
	Abbreviations and acronyms	xvi
1.	Population movement and health: an overview	1
	1.1 Introduction	3
	1.2 Definitions and terms	5
	1.2.1 Key definitions	5
	1.2.2 Populations not included in this Report	6
	1.3 Global displacement and migration patterns	9
	1.4 Migratory patterns in WHO regions	12
	1.5 Age and gender	13
	1.6 Displacement	14
	1.7 Health and the dynamics of global displacement and migration	15
	1.7.1 Urbanization	18
	1.7.2 Brain circulation: brain drain versus brain gain	18
	1.7.3 Sending money home	19
	1.7.4 Left-behind families	20
	1.7.5 Discrimination and xenophobia	21
	1.7.6 People smuggling and human trafficking	21
	1.7.7 Climate change	22
	1.8 Health and migration policies	23
	1.8.1 Key international frameworks	24
	1.8.2 WHO resolutions and action plans	26
	References	28
2.	Determinants of refugee and migrant health	39
	2.1 Introduction	41
	2.2 Sex and gender	43
	2.2.1 Health of women and girls	43
	2.2.2 Health of men and boys	44
	2.2.3 LGBTQI+ populations and sexual minorities	45
	2.2.4 Menstrual hygiene management	47
	2.3 Age	48
	2.3.1 Unaccompanied or separated children	48
	2.4 Education	50
	2.4.1 Health outcomes	51
	2.4.2 Access to education for refugee and migrant children	52
	2.4.3 Employment challenges associated with level of education	53
	2.5 Health literacy	53
	2.5.1 Influence on health outcomes	54
	2.5.2 Strategies to improve health literacy and communication	55

2.6	Income	56
2.6.1	Health outcomes	56
2.6.2	Remittances and left-behind families	56
2.7	Migratory status	57
2.8	Social support	58
2.8.1	Acculturation	58
2.8.2	Parenting	58
2.8.3	Substance use	59
2.9	Air quality	60
2.10	Water, sanitation and hygiene	62
2.10.1	Access to safe drinking-water	62
2.10.2	Access to safe sanitation	62
2.10.3	Hygiene	63
2.11	Housing and living environments	64
2.11.1	Housing	65
2.11.2	Immigration detention	66
2.11.3	Housing barriers and solutions	68
2.12	Food and nutrition	69
2.12.1	Food assistance	71
2.13	Summary	71
	References	73
3.	Health status of refugees and migrants: a global perspective	91
3.1	Introduction	93
3.2	Occupational health	95
3.2.1	High-risk and physically demanding sectors of industry	97
3.2.2	Data challenges	100
3.3	Sexual and reproductive health	104
3.3.1	Contraception and family planning	104
3.3.2	Sexually transmitted infections	107
3.3.3	Sexual and gender-based violence	108
3.3.4	Female genital mutilation	109
3.4	Maternal and child health	110
3.4.1	Access to antenatal care	110
3.4.2	Obstetric, postpartum and postnatal health and access to care	112
3.4.3	Malnutrition and anaemia	112
3.4.4	Other child health issues	114
3.5	Noncommunicable diseases and major risk factors	115
3.5.1	Cardiovascular diseases	117
3.5.2	Cancer	117
3.5.3	Hypertension	119
3.5.4	Diabetes mellitus	120
3.5.5	Substance use	120
3.5.6	Obesity	121
3.6	Mental health	124
3.6.1	Depression and anxiety	124
3.6.2	Post-traumatic stress disorder	126
3.6.3	Suicide and self-harm	126
3.6.4	Schizophrenia and other psychotic disorders	127
3.6.5	Child mental health	128

3.7	Communicable diseases	129
3.7.1	HIV/AIDS	130
3.7.2	Tuberculosis	133
3.7.3	Malaria	138
3.7.4	Other communicable diseases	140
3.8	COVID-19	143
3.8.1	Burden of disease	144
3.8.2	Health and other impacts	144
3.8.3	Policy responses	150
3.8.4	Testing, treatment and vaccination	151
3.9	Summary	153
	References	154

4.

	Refugee- and migrant-sensitive health systems	189
4.1	Introduction	191
4.2	Service delivery	193
4.2.1	Common barriers	193
4.2.2	Service models to meet refugee and migrant health needs	196
4.3	Health workforce	199
4.3.1	Sufficient staffing levels, training and resources	199
4.3.2	Supporting refugee and migrant health workers	201
4.3.3	Impact of migration	202
4.3.4	Better use of health professionals	203
4.3.5	Countries with a large migrant health workforce	203
4.4	Access to medical products, vaccines and technologies	206
4.4.1	Access to good-quality and affordable medicines	206
4.4.2	Access to vaccines	208
4.5	Health information systems	211
4.5.1	Data collection on refugee and migrant health	211
4.5.2	Dissemination and use of refugee and migrant health data	215
4.6	Financing	215
4.6.1	Refugee and migrant expenditure	215
4.6.2	Public health coverage	216
4.6.3	Mixed or private health insurance coverage	219
4.7	Leadership and governance	220
4.7.1	Legal access and entitlement: national policies	221
4.7.2	Refugee-hosting contexts	226
4.7.3	Regional leadership and strategies	227
4.8	Summary	229
	References	230

5.

	Mapping progress towards global health goals: an exploratory review	247
5.1	Introduction	249
5.2	The challenge to meet	251
5.2.1	Making the health of refugees and migrants visible in major data sets	252
5.2.2	The SDGs and population movement	252
5.2.3	Moving forward on disaggregation	253
5.3	Review methodology	255
5.3.1	Criteria for inclusion	255
5.3.2	Data limitations	256
5.3.3	Definitions	259

5.4	Review results	261
5.4.1	Housing	262
5.4.2	Health insurance	263
5.4.3	Health and access to health care services	266
5.4.4	Health services and protective interventions	267
5.4.5	Mental health	274
5.4.6	Drinking-water, sanitation and hygiene as a health determinant	276
5.5	Summary	276
	References	279
6.	Health and migration: the way forward	287
6.1	The current state of affairs	289
6.1.1	Population movement and health: an overview	290
6.1.2	Determinants of refugee and migrant health	291
6.1.3	Health status of refugees and migrants	292
6.1.4	Gaps and good practices in health systems	294
6.1.5	Refugees and migrants are not visible in global data sets: Sustainable Development Goal targets will be missed	297
6.2	The way forward: health for a world in motion	298
6.2.1	Health and migration: a global health priority	298
6.2.2	Towards concerted efforts: a paradigm shift	299
6.2.3	Effectively integrating refugees and migrants into universal health coverage and primary health care	299
6.2.4	Global action plan	301
6.3	Policy and practice	301
6.3.1	Develop short- and long-term public health action plans that include refugees and migrants, and support their implementation	301
6.3.2	Strengthen the capacity and increase the sensitivity of health systems to meet the specific health needs of refugees and migrants	301
6.3.3	Enhance understanding of the health promotion and health needs of refugees and migrants	302
6.3.4	Actively include refugees and migrants within financial and social protection systems	302
6.3.5	Strengthen accountability and indicators framework	303
6.3.6	Promote global research, strengthen knowledge production and build research capacity in health and migration	304
	References	305
Annex	Methodology	306

Foreword



Today there are some one billion migrants globally, about one in eight people. The experience of migration is a key determinant of health and well-being, and refugees and migrants remain among the most vulnerable and neglected members of many societies.

This report is the first to offer a global review of health and migration and calls for urgent and concerted action to support refugees and migrants across the world to access health

care services that are sensitive to their needs. It illustrates the pressing need to study and mitigate the root causes of migration and to radically reorient health systems to respond to a world increasingly in motion.

Whether by choice or by force, to be on the move is to be human and is part of human life. Whatever a person's motivation, circumstance, origin or migratory status, we must unequivocally reiterate that health is a human right for all, and that universal health coverage must be inclusive of refugees and migrants.

We live in challenging times. Disease, famine, climate change and war all converge to threaten our global security, putting unprecedented pressures on our societies and economies. Meanwhile, the COVID-19 pandemic continues to have a disproportionate effect on the health and livelihoods of refugees and migrants, with unique challenges for labour migrants.

At the start of 2022, the World Health Organization (WHO) and its partners were responding to complex humanitarian crises in Afghanistan, Ethiopia, Somalia, South Sudan, the Syrian Arab Republic and Yemen, each of which has fuelled mass population movements and severely tested health systems in host countries. Then came war in Ukraine, which pushed the total number of displaced people above 100 million for the first time in history.

But the full extent of the impact of these upheavals is not yet understood because, as this report demonstrates, refugees and migrants are not fully visible in the available data – a serious gap that must be fixed. We must invest in strengthening and implementing policies that promote refugee and migrant health, guided by innovative data gathering and analysis.

We urge governments, agencies, donors and other partners to think creatively and act compassionately to improve the health of people on the move, and to do so across all sectors of society.

I invite you to read this report and join WHO and our partners in our commitment to build a healthier and more resilient world for all.



Dr Tedros Adhanom Ghebreyesus

Director-General

World Health Organization

Preface



Every eighth person on the planet is a migrant or displaced, and the numbers are growing. It is widely accepted that the experiences of displacement and migration are key determinants of health and well-being; consequently, responding to migration is crucial for global health. WHO is fundamentally committed to leaving not one of these people behind. It has, therefore, invested in the gathering and review of global evidence and created this *World report on the health of refugees and migrants*. The report is the first of its kind to illustrate with such breadth and specific detail the multitude of health challenges faced by hundreds of millions of refugees and migrants, drawing on evidence that is as comprehensive as possible from around the globe.

The report presents clear evidence that refugees and migrants can experience poor health outcomes, primarily due to suboptimal working and living conditions, which have a negative impact on the health and well-being of refugees, migrants and asylum seekers, among others. Refugees and migrants often experience much worse health outcomes than host populations, compounded by their vulnerable circumstances and poor health determinants. The report notes just how crucial it is to address the determinants of poor health beyond the health sector when considering the health of refugees and migrants.

Two of the key findings of the report are the virtual absence of comparable data across countries and over time on refugee and migrant health and the lack of disaggregation according to migratory status within global health data sets. The report shows critical gaps globally in data quality and knowledge and calls for investment in fit-for-purpose data, surveillance and monitoring to support robust evidence-informed policies and plans for implementation. If this vital data gap remains, refugees and migrants will continue to be left behind, and achieving the Sustainable Development Goals (SDGs) will be impossible.

Climate change and the increased number of conflicts mean increasing numbers of people are on the move. The impact of anthropogenic climate

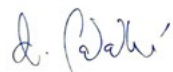
change is already felt across 80% of the world's land area, which holds 85% of the world's population. It is predicted that over 200 million additional people will be forced to move by 2050.

There are solutions. This report offers practical considerations to address health disparities for refugees and migrants and to address the root causes that negatively influence health. These include those that traditionally fall outside the strict remit of the health sector, such as education, sex, age and migratory status. Existing health systems should be reorientated to include refugees and migrants in all services and programmes, in line with the principles of universal primary health care and universal health coverage. The health determinants, status and outcomes of refugees and migrants should be monitored to assess progress, or lack thereof, towards the SDGs and other goals and targets. Because the health and well-being of refugees and migrants cut across multiple sectors of society, the health sector must play an important leadership and facilitating role.

With the magnitude of the challenge so plainly evident and with many promising approaches identified, it is now possible for countries, institutions and researchers to prioritize the actions and investments needed to monitor and improve health and migration in line with the SDGs. WHO's Thirteenth General Programme of Work provides a framework for the urgent action necessary, prioritizing the guiding principles of promoting health, keeping the world safe from disease and focusing on the least-served, most vulnerable populations. These align with the 2030 Agenda for Sustainable Development and its commitment to leave no one behind. WHO's *Global action plan on promoting the health of refugees and migrants* also includes health as an essential component of protection and assistance for refugees and migrants and good migration governance.

The world has rightly responded with national and international policies and frameworks on health and migration, yet substantial disparities remain. What we need now is action, and it will take whole-of-government and whole-of-society approaches to ensure the health of refugees and migrants and their host populations. With this report, WHO and its Health and Migration Programme reiterate a commitment to promoting and advancing the health issues of all refugees and migrants worldwide.

We hope this report will ring the alarm, inspire compassion, increase understanding and, most of all, urge practical action towards universal health care that leaves no one invisible, no one without essential and quality health services, no one behind. Health for all, including refugees and migrants: time to act now.



Dr Zsuzsanna Jakab
Deputy Director-General
World Health Organization



Dr Santino Severoni
Director
Health and Migration Programme

Acknowledgements

WHO gratefully acknowledges the many experts and agencies who contributed to the planning, development and review of this report.

Leadership and coordination

This report was developed under the overall strategic lead and technical direction of Santino Severoni, Director, WHO Health and Migration Programme, Geneva, Switzerland. Rifat Hossain, Technical lead, data and evidence, WHO Health and Migration Programme, was responsible for coordinating the development and production of the report. Soorej Puthooppambal, Head, WHO Collaborating Centre on Migration and Health Data and Evidence, Uppsala University, Uppsala, Sweden, provided methodological and technical guidance on the overall content of the report.

Technical writers

The report was drafted by Andrew Wilson, Leyla Alyanak and Felicity Thompson.

WHO contributors and reviewers

The following staff and consultants of the Health and Migration Programme reviewed multiple drafts of the report, checking data and evidence, and/or provided technical support: Richard Alderslade, Giuseppe Domenico Annunziata, Rimu Byadya, Veronica Cornacchione, Mohammad Darwish, Cetin Dikmen, Palmira Immordino, Kanokporn Kaojaroen, Joowon Kim, Alexandra Ladak, Khawla Nasser Aldeen, Miriam Orcutt, Rita Sa Machado, Ana Cristina Sedas, David Tellez and Marie Wolf. The following WHO staff and consultants also contributed to the technical content and review of the report.

WHO headquarters

Elizabeth Aime-McDonald, Rajiv Bahl, Anand Balachandran, Valentina Baltag, Julia Berenson, Gautam Biswas, Elaine Borghi, Francesco Branca, James Campbell, Richard Michael Carr, David Clarke, Giorgio Cometto, Bernadette Daelmans, Luz de Regil, Khassoum Diallo, Theresa Diaz, Tessa Edejer, Albis Francesco Gabrielli, Philippe Glaziou, Laurence Grummer-Strawn, Ahmadreza Hosseinpoor, Devora Lillia Kestel, Katherine Kirkby,

Monika Kosinska, Etienne Krug, Joseph Douglas Kutzin, Jae-se Lee, Daniel Low-Beer, Blerta Maliqi, Mary Mandahar, Silvio Mariotti, Michelle Mcisaac, Claude Meyer, Gerardo Zamora Monge, Allisyn Carol Moran, Marjolaine Nicod, Alana Margaret Officer, Kathy O'Neill, Sarah Paulin-Deschenaux, Kumanan Rasanathan, Briana Rivas-Morello, Nathalie Laure Roebbel, Sebastian Rositano, Sylvie Eliane Schaller, Gerard P. Schmets, Slim Slama, Marcus Marcellus Stahlhofer, Chelsea Maria Taylor, Meelan Thondoo, Tamitza Toroyan, Inka Weissbecker and Diane Wu.

WHO regional offices

WHO Regional Office for Africa: Ernest Dabire and Abdou Salam Gueye; WHO Regional Office for the Americas: Candelaria Araoz, James Fitzgerald, Julie Helene Issa, Camila Polinori and Ciro Ugarte; WHO Regional Office for South-East Asia: Lin Aung, Aarti Garg, Stephen Paul Jost and Edwin Salvador; WHO Regional Office for Europe: Jozef Bartovic, Kristina Mauer-Stender, Elisabeth Waagensen and Gundo Weiler; WHO Regional Office for the Eastern Mediterranean: Rana Al Naggar, Ali Ardalan, Hala El Shazly, Awad Mataria and Tonia Rifaey; WHO Regional Office for the Western Pacific: Isabel Constance Espinosa, Kira Fortune, Tsering Kalden Lama, Caroline Lukaszuk, Angela Pratt and Jaitra Sathyandran.

Regional literature reviews

The report is based on comprehensive literature reviews of evidence from all WHO regions, which were conducted under the supervision of WHO regional offices.

The literature review for the WHO African Region was conducted, synthesized and written by Jo Vearey (lead), Yacine Ait Larbi and Marta Luzes, Samuel Hall, Nairobi, Kenya, and Edward Govere, Thea de Gruchy, Langa Mlotshwa and Rebecca Walker, African Centre for Migration and Society, Wits University, South Africa.

The literature review for the WHO Region of the Americas was conducted, synthesized and written by Báltica Cabieses (lead), María Inés Álvarez, Alice Blukacz, Marcelo Lizana, Alexandra Obach and Isabel Rada, Programa de Estudios Sociales en Salud, Instituto de Ciencias e Innovaciones Médicas, Universidad del Desarrollo, Santiago, Chile.

The literature review for the WHO South-East Asia Region was conducted, synthesized and written by Anjali Borhade (lead), Nisha Bharti, Subhojit Dey, Isha Jain and Vishika Yadav, Disha Foundation, New Delhi, India.

The literature reviews for the WHO European Region were conducted, synthesized and written by the following teams: Gianfranco Costanzo (lead), Andrea Cavani, Alessandra Diodati, Anteo Di Napoli, Concetta Mirisola, Alessio Petrelli and

Leuconoe Grazia Sisti, National Institute for Health, Migration and Poverty, Rome, Italy; Alessandra Bettioli and Irene Mattioli, University of Florence, Florence, Italy; and Pietro Amedeo Modesti, Careggi University Hospital, University of Florence, Florence, Italy (for non-Russian-speaking countries); and Alexey Novozhilov, Federal Research Institute for Health Organization and Informatics, Moscow, Russian Federation (for Russian-speaking countries).

The literature review for the WHO Eastern Mediterranean Region was conducted, synthesized and written by Jocelyn DeJong (lead), Chaza Akik, Zeinab Dirani, Layal Hneiny and Eman Sharara, American University of Beirut, Beirut, Lebanon.

The literature review for the WHO Western Pacific Region was conducted, synthesized and written by Lisa Grace S. Bersales (lead), Kristine Faith Agtarap, Claire Berja, Clarinda Lusterio Berja, Michael Dominic Del Mundo and Aileen Guyos, University of the Philippines, Manila, Philippines.

Synthesis of the evidence reviews

The regional evidence reviews were synthesized by the following teams: Catherine K. Ettman and Sandro Galea (Boston University, United States of America), Paul Spiegel, David Tellez, Maryada Vallet and Cyndy Vasquez (Johns Hopkins University, United States of America); and Lisa Grace S. Bersales, Kristine Faith Agtarap, Claire Berja, Clarinda Lusterio Berja, Michael Dominic Del Mundo and Aileen Guyos (University of the Philippines, Manila, Philippines).

The following contributors provided valuable input and feedback on the analysis and presentation of household survey data: Trevor Croft and Shea Rutstein (Demographic and Health Surveys); Holly Newby (formerly of Demographic and Health Surveys and the United Nations Children's Fund); Atilla Hancioglu and Turgay Unalan (Multiple Indicator Cluster Surveys, United Nations Children's Fund); Olivier Dupriez, Aivin Vicquierra Solatorio and Matthew John Welch (World Bank and International Household Survey Network).

Institutional contributions

Numerous technical inputs and feedback were received from the following experts: Elisa Benes, Bálint Náfrádi, Andonirina Rakotonarivo and Valentina Stoevska (International Labour Organization); Julia Black, Nuwe Blick, Frank Laczko and Elisa Mosler Vidal (International Organization for Migration Global Migration Data Analysis Centre); Aleksandar Arnikov, Poonam Dhavan, Chiaki Ito, Kit Leung, Janice Lopez, Maeva Peek, Guglielmo Schinina, Agan Sweetmavourneen, Jacqueline Weekers, Kolitha Wickramage and Alice Wimmer (International Organization for Migration, Migration Health Division); Grace

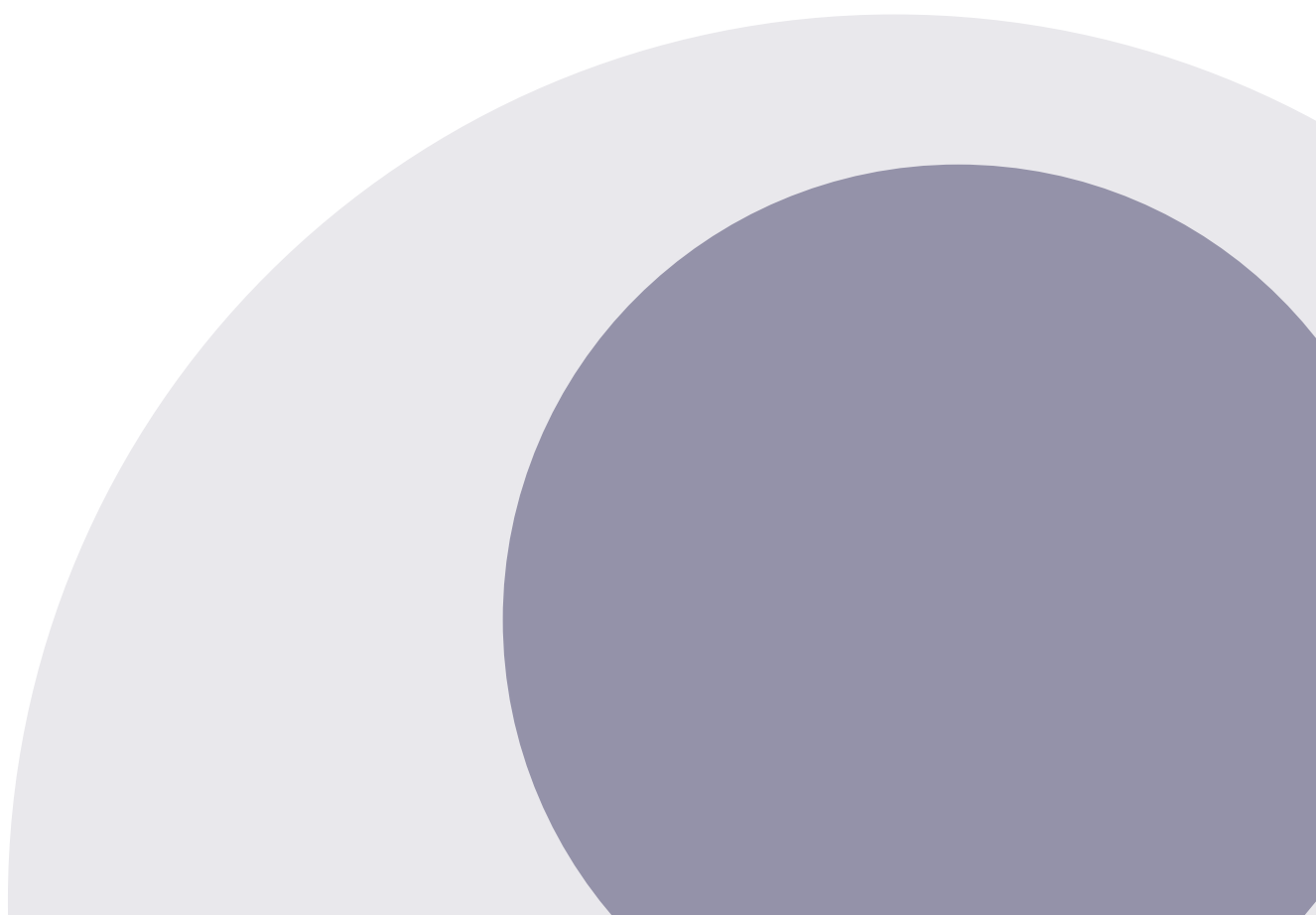
Sanico Steffan (Office of the United Nations High Commissioner for Human Rights); Jan Beise, Daniela Knoppik, Ralf Moreno, Sebastian Palmas and Danzhen You (United Nations Children's Fund); Monica Aguayo, Miguel Castillo, Xavier Mancero, Rolando Ocampo Fernanda Reynoso, Zulma Sosa and Daniel Taccari (United Nations Economic Commission for Latin America and the Caribbean); Ann Burton, Tarek Abou Chabake, Ibrahima Diallo, Sandra Harlass and Peter Ventevogel (United Nations High Commissioner for Refugees); Enrico Bisogno, Tejal Jesrani Haslinger, Claire Healy, Angela Me and Philipp Meissner (United Nations Office on Drugs and Crime); Ginette Azcona, Antra Bhatt and Alembirhan Berhe (UN Women); Gero Carletto and Olivier Dupriez (World Bank); S. Irudaya Rajan and Dilip Ratha (World Bank Global Knowledge Partnership on Migration and Development); Bjorn Gillsater, Harriet Muger, Katherine Perkins and Charlotte Persson (World Bank-UNHCR Joint Data Centre on Forced Displacement); Michael Flynn (Global Detention Project, Geneva, Switzerland); Amal de Chickera, Ottoline Spearman and Laura van Waas (Institute on Statelessness and Inclusion); Christelle Cazabat (Internal Displacement Monitoring Centre, Geneva, Switzerland); Clara P.C. Fast (Duke University, Durham, United States of America); and Laibah Ashfaq, Paige Chu, Andrea Cortinois, Caitlin Manderville, Ryan Y. Ruan and Andrea Sanchez Martinez (University of Toronto, Toronto, Canada).

External reviewers

The report was also subject to a comprehensive review by global experts on the various areas covered: Shea Rustein (Demographic and Health Surveys); Bernadette Nirmal Kumar (European Public Health Association/Lancet Migration); Thomas H. Gassert (Harvard University, Cambridge, United States of America); Iffat ElBarazi, Michal Grivna and Syed Mahboob Shah (Institute of Public Health, College of Medicine and Health Sciences, United Arab Emirates University, Abu Dhabi, United Arab Emirates); Anders Hjern (Karolinska Institute, Solna, Sweden); Paul Bukuleke (Makarere University, Kampala, Uganda); Gianfranco Costanzo and Leuconoe Grazia Sisti (National Institute for Health, Migration and Poverty and WHO Collaborating Centre on Health and Migration Evidence and Capacity Building, Rome, Italy); Cesar Infante Xibille (National Public Health Institute, Mexico); Osman Dar (Royal Institute of International Affairs, London, United Kingdom of Great Britain and Northern Ireland); Ibrahim Abubakar and Rita Issa (University College London, London United Kingdom); Charles Agyemang (University of Amsterdam, Amsterdam, the Netherlands); Francesco Castelli and Beatrice Formenti (University of Brescia, Brescia, Italy); Steffanie Ann Strathdee (University of California, San Diego, United States of America); Indika Karunathilake (University of Colombo, Sri Lanka); and Jaime Miranda (Universidad Peruana Cayetano Heredia, San Martin de Porres, Peru).

Financial contributions

WHO gratefully acknowledges the financial contributions to the development and production of this report provided by the Italian National Institute for Health, Migration and Poverty, the German Federal Ministry of Health, the Italian Ministry of Health, the Russian Federation and the Directorate-General for International Partnerships of the European Commission through the Health Systems Strengthening for Universal Health Coverage Partnership Programme.



Abbreviations and acronyms

ANC	antenatal care
ART	antiretroviral therapy
BADEHOG	Household Survey Data Bank (<i>Banco de Datos de Encuestas de Hogares</i>)
BCG	bacille Calmette–Guérin
BMI	body mass index
CHW	community health worker
COVID-19	coronavirus disease
CVD	cardiovascular disease
DHS	Demographic and Health Survey
DHS-VII	Demographic and Health Survey (DHS) phase VII
EEA	European Economic Area
e-health	electronic health
EHR	electronic health record
ESS	European Social Survey
EU	European Union
FGM	female genital mutilation
GAP	Global action plan on promoting the health of refugees and migrants, 2019–2023 (WHO)
GDP	gross domestic product
GPW13	Thirteenth General Programme of Work, 2019–2023 (WHO)
HBV	hepatitis B virus
HCV	hepatitis C virus
HICS	health insurance card scheme
HIS	health information systems
HPV	human papillomavirus
IDP	internally displaced person
ILO	International Labour Organization
IOM	International Organization for Migration
IPV	intimate partner violence
LGBTQI+	lesbian, gay, bisexual, transgender, queer and intersex
LTBI	latent tuberculosis infection
MCH	maternal and child health
MGI	Migration Governance Indicator
m-health	mobile health

MICS	Multiple Indicator Cluster Survey
MICS6	Multiple Indicator Cluster Survey round 6
MIPEX	Migrant Integration Policy Index
MSM	men who have sex with men
NCD	noncommunicable disease
NGO	nongovernmental organization
NHWA	National Health Workforce Accounts
OECD	Organisation for Economic Co-operation and Development
OPV	oral poliovirus vaccine
PHC	primary health care
PISA	Programme for International Student Assessment
PTSD	post-traumatic stress disorder
SAVe	Support Asylum and Vulnerabilities through e-health
SDG	Sustainable Development Goal
SES	socioeconomic status
SGBV	sexual and gender-based violence
SRH	sexual and reproductive health
STI	sexually transmitted infection
TB	tuberculosis
UASC	unaccompanied or separated children
UDDT	urine-diverting dry toilet
UHC	universal health coverage
UNDESA	United Nations Department of Economic and Social Affairs
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
VPD	vaccine-preventable disease
WASH	water, sanitation and hygiene
WHO	World Health Organization



The world witnessed most unprecedented consensus among governments and nongovernmental, civil society and private sector organizations when the 2030 Agenda was adopted at the United Nations General Assembly on 25 September 2015. It was a historic moment for humankind to have this recognition of universal human rights and the rights to health and other basic services, and to have the ultimate pledge to meet these goals and targets for all human beings, including refugees and migrants, by 2030. We must also recall the promise we made in the same year to tackle the climate crisis through the Paris Declaration.

Achieving peace and prosperity for all people and the planet by 2030 requires concrete and concerted efforts that prioritize support to the vulnerable by understanding all their unique challenges and needs and addressing them. This includes ensuring healthy lives and promoting well-being. Good health and well-being are key to peaceful and prosperous societies.

Recognizing that migration and displacement have an impact on the health of the billion people on the move, this report marks a welcome advance in thinking of migration and displacement through one clarifying glass. The lens is universal health coverage and the idea that everyone has a right to "complete physical, mental and social well-being and not merely the absence of disease or infirmity", as stated in the WHO Constitution in 1946.

I commend WHO's report in highlighting the health issues related to refugees and migrants and the call on the global community to collectively tackle this emerging challenge.

Ban Ki-moon

Chairman of Ban Ki-moon Foundation for a Better Future, 8th Secretary-General of United Nations

CHAPTER 1

Population movement and health: an overview



A boy joins other displaced families in Yar Hussain camp in Swabi, 100 kilometres from Islamabad, Pakistan. © IOM / Saleem Rehmat

1.1 Introduction

Displacement and migration are key determinants of health and well-being not only for refugees and migrants but also for the populations in their countries of destination, transit and origin (1–6). The relationship between health and population movement is complex and dynamic. Health can improve when people move from a conflict situation to a peaceful one or from an area of high unemployment to one where better-paid, safe work is plentiful. However, poorer health can result when refugees and migrants are exposed to conditions that undermine good health during different phases of migration (7). Displacement and migration can also result in interruption of health care provision or treatment, leading to challenges in continuity of care. Migration has long been a politically contested issue (8,9). Phenomena, such as conflict, income inequality, economic shifts, urbanization and climate change, inevitably affect population movement and their health. The COVID-19 pandemic vividly illustrated yet again the impact of world events on the health of refugees and migrants (Box 1.1).



A WHO Thailand Migrant and Border Health Officer (centre), a health volunteer from Myanmar (right) and volunteers from Samut Sakhon Hospital (left) visit a Burmese migrant worker and her child in her dormitory in Thailand to talk about how to stay safe from COVID-19.
© WHO / Ploy Phutpheng



Box 1.1.
COVID-19, migration and health

The COVID-19 pandemic reminded the world of the strong connection between health and migration and highlighted how the inclusion of refugees and migrants in global preparedness and response plans is essential to respond effectively to public health emergencies.

Shortly after WHO characterized the outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infections and subsequent COVID-19 as a pandemic, many countries introduced travel restrictions and border closures, even though evidence for the efficacy of these measures was doubtful (10). As a result, many migrants were not able to return to their countries of origin, refugees were not able to travel onwards to their countries of destination, and home governments refused large numbers of returnees (11). By mid-2020, the global number of international migrants had decreased by 2 million: a 27% fall in the growth expected between July 2019 and June 2020 (12). Although individual asylum applications temporarily fell worldwide between 2019 and 2020 to 1.3 million, a decrease of almost 1 million, the number of refugees rose to almost 20.7 million, an increase of nearly 250 000 (13).

A multitude of health-related clinical, logistic and social challenges have emerged for refugees and migrants worldwide as a result of the pandemic. While some challenges are similar to those faced by the populations in destination or transit countries, this report finds that some impacts of the pandemic are heightened among, or even specific to, certain populations on the move. Chapter 3 reviews the impact of COVID-19 on the health of refugees and migrants and Chapter 4 covers governmental responses.

Refugees and migrants may include essential workers, health care providers, scientists and artists, and they bring knowledge, experience, skills and more to the places where they move (14–16). Countries benefit from the contributions of refugees and migrants and

also thrive when the entire population is healthy (17,18). The health needs of refugees and migrants have to be recognized (19,20). Significant proportions of refugees and migrants are healthy (19,20), but, like other populations, they also have specific health needs (21–23). If these health needs are ignored, both countries and refugees and migrants can end up paying more in the long run (24) than if the needs had been anticipated, addressed and included in national health policies, programmes and services (25,26).

The COVID-19 pandemic vividly illustrated yet again the impact of world events on the health of refugees and migrants.

This introductory chapter frames international migration and displacement in the context of health.

1.2 Definitions and terms

This *World report on the health of refugees and migrants* uses the term "refugees and migrants" in presenting evidence from studies in which the population is not clearly mentioned or includes several groups. Whenever available, data that permit the disaggregation of refugees and international migrants are presented as such. The key definitions used in this report are summarized in section 1.2.1, along with brief descriptions of certain populations who are outside the report's purview. Use of the designations and material in this report does not indicate an opinion on the legal status of any country, territory, city or area or its authorities or on delimitation of its frontiers or boundaries. The term "country" as used in this report also refers, as appropriate, to territories or areas.

While the term "refugee" is defined in the 1951 *Convention relating to the status of refugees* and the 1967 *Protocol relating to the status of refugees* (27), there is no international consensus on the definition of "migrant". This makes the work of synthesizing the state of health and migration challenging (28). Thus, multiple definitions exist and discussions that aim to clarify terminology are ongoing, including discussions in 2021 at the 52nd United Nations Statistical Commission, one of which focused on common definitions for measuring concepts in migration (29). The 1998 United Nations *Recommendations on statistics of international migration* defined "international migrants" as people who changed their country of usual residency (30). The lack of consensus on the definition of "migrant" creates challenges for systematically collecting and analysing data about the health of migrant populations. It also undermines the principle of health for all and increases health inequities across refugee and migrant populations (28,31–33). The definitional

challenges point to the need for more higher-quality and standardized, disaggregated data and definitions around health and migration (28).

1.2.1 Key definitions

Discussions on updating the definitions of international migrants are ongoing, with key questions centring around the length of stay and reason for displacement and migration. The terms and definitions most frequently used in this report are described below, although the list is far from exhaustive.

Migrant. A person who moves from one place to another, whether across or within international boundaries. Despite the absence of a universally accepted definition of "migrant", this definition is widely used (34).

International migrant. Any person who changes his or her country of usual residence (35). Unless otherwise identified, the migrants discussed in this report are international migrants.

Refugee. Any person who meets the eligibility criteria under an applicable definition of refugee, as provided for in international or regional refugee instruments, under the mandate of the Office of the United Nations High Commissioner for Refugees (UNHCR) or in national legislation. Under international law and the UNHCR's mandate, refugees are persons outside their country of origin who are in need of international protection because they fear persecution or a serious threat to their life, physical integrity or freedom in their country of origin as a result of persecution, armed conflict, violence or serious public disorder (27,36).

Asylum seeker. An individual who seeks international protection. In countries where asylum cases are judged on a case-by-case basis using specific eligibility criteria, asylum seekers

are people whose claim has not been finally decided on by the country in which they have submitted it. Not every asylum seeker will ultimately be recognized as a refugee, but every recognized refugee is initially an asylum seeker (36).

International migrant worker. This report uses the International Labour Organization (ILO) definition of "all international migrants who are currently employed or unemployed and seeking employment in their present country of residence" (37).

Migrant in an irregular situation (also irregular migrant, undocumented migrant). A person who moves or has moved across an international border and is not authorized to enter or to stay in a state pursuant to the law of that state and to international agreements to which that state is a party (34).

For full sets of definitions related to refugees and migrants, see the UNHCR's Master glossary of terms (36) and the International Organization for Migration (IOM) Glossary on migration (34).

1.2.2 Populations not included in this report

Together, internal migrants and internally displaced persons (IDPs) are considerably more numerous than their counterparts who cross international borders, although there are no precise estimates of their numbers, particularly for internal migrants. In 2013 there were an estimated 763 million internal migrants (that is, migrants who stay within their country of origin), although the figures may be far higher due to the informal nature of much of this movement (38,39). Internal migration is one of the most significant characteristics of developing economies and societies, in which internal migrants account

for the majority of workers in the informal economy (40).

There are also millions of people who are described as stateless. Although their health and living conditions are of enormous importance to global health and development, the scope of this report is confined to refugees and international migrants. The health of those who move or are displaced within countries will receive in-depth attention in the near future.

Internal migration and displacement. Much of this type of migration and displacement is thought to result from disparities in living conditions between rural and urban areas, as measured by unemployment, income, consumption or other non-monetary factors (41,42). Gender plays an important and complex role in internal migration, as it does in migration across international borders. For example, significant numbers of women move within their countries to become domestic workers or to take part in industries that hire women for specific types of work (43).

While large-scale rural-to-urban migration (section 1.7.1) rose along with burgeoning economic expansion in the now-developed economies from the 19th to the mid-20th centuries, today's largest internal population shifts are in middle- and low-income countries, particularly China and India (41,44–46). As with international migration, data on the health implications of internal migration and displacement remain incomplete and fragmented.

IDPs. Individuals who are displaced by conflict or disaster do not always cross an international border. In fact, IDPs represent the majority of the world's displaced, with 55 million globally at the end of 2020 (47). Of these, 48 million people had been affected by conflict or violence and 7 million had been displaced

due to disasters, including earthquakes and climate-related issues.

IDPs often show higher rates of undernutrition than non-displaced persons in similar circumstances. Displaced persons are not only forced away from their land and from the natural resources they used to rely on for food but also tend to have less money to buy it. In 2012 in Afghanistan, for instance, most families displaced by conflict spent more than 75% of their limited income on food and still had to reduce both its quality and its quantity (48). In some contexts, IDPs may even be worse off than refugees: a study conducted in Ethiopia, Kenya, Sudan and Uganda showed that more than 15% of the IDPs suffered from acute malnutrition compared with 12% of the refugees (49).

The health needs of IDPs, who lack the formal legal protections afforded to refugees, are little understood, but research suggests they experience equal or worse health outcomes than other conflict-affected populations (50).

Although the needs of IDPs for health care increase during displacement, their access to health services usually deteriorates (51). They are often pushed away from familiar health systems, practitioners and facilities, their financial resources are jeopardized and their social networks are destabilized, creating sometimes unsurmountable barriers to accessing care. IDPs with disabilities or illnesses requiring long-term treatment may see their conditions deteriorate drastically after displacement (52). In a 2021 survey of people internally displaced by violence in a country in the WHO African Region, 17% said their access to health care had decreased during displacement, mainly because they could no longer afford it (53).

Mental health is often undermined during displacement. Particularly for children and older people, sudden changes in their

usual place of residence, environment and community, and separation from loved ones can be overwhelming psychological stressors (54,55). The most commonly reported impacts of internal displacement on mental health are post-traumatic stress disorder (PTSD) and anxiety and depression (56,57), but displacement can also contribute to drug- and alcohol-use disorders and aggravate or increase the risk for developing chronic disorders, including schizophrenia and psychosis (58).

As many IDPs are displaced due to conflict, women and girls carry the burden of caring for the family because men and boys are often absent. The need to look for food and firewood sometimes raises risks of sexual violence. Health facilities are often scarce in areas where there are IDPs, making sexual and reproductive services inaccessible (59).

Stateless person. The United Nations *Convention Relating to the Status of Stateless Persons* defines stateless people as persons who are not considered to be nationals by any state under the operation of its law (60). Most live in their own countries and may have never crossed an international border (34,61). However, many are migrants or refugees or have histories of migration and forced displacement (62). Statelessness can both cause and be caused by migration. Moreover, displaced people are at a higher risk of becoming stateless due to increased difficulties in proving their nationality, including as a result of conflicting nationality laws, the loss or destruction of important documents, and a lack of access to civil documentation or registration in their country of refuge (62).

There are an estimated 15 million stateless people globally, with an additional tens of millions whose nationality status is at risk (63). Although it is unclear how many migrants

or refugees are stateless, the figure is also likely to be significant. This estimate includes Rohingya refugees, stateless Palestinians under the mandate of the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) and hundreds of thousands of stateless migrants and refugees in industrialized countries.

Stateless people share many of the challenges that refugees and migrants face in accessing health care, as well as additional unique problems owing to their lack of documented nationality. Because many health care systems privilege citizens, stateless people often encounter barriers to access due to their lack of documentation, discrimination by health care providers and high fees, or have their access limited to emergency medical care (64). Discrimination often persists even when

nationality is obtained – for example, by being denied entry to hospital (65). In addition to the right to health, the lack of nationality also undermines the fulfilment of other rights – including education, social security and an adequate standard of living – which are intrinsically linked to health (64,66).

An example of how a barrier specific to stateless people can be resolved was recently seen in Lebanon. Initially, registration for COVID-19 vaccination required health care workers to input a nationality into the health information system, meaning that stateless people could not register. Following advocacy by the civil society organization Oummal, the government added the category "stateless" to the registration portal, and this now allows stateless persons to use their identity cards of stateless to access the vaccine (66).



In March 2022, Ukrainians fleeing the Russian invasion line up to leave the country from a train station in the city of Lviv. © WHO / Kasia Strek

1.3 Global displacement and migration patterns

From 1990 to 2020, the global population increased from 5.3 billion to 7.8 billion. During those years, the total number of international migrants increased from 153 million (2.9% of the global population) to 281 million (3.6% of the global population). About 48% of international migrants are women (67) and some 36 million are children (67,68). The greatest increases in international migration during the last decade have been due to family migration (including family reunification) and labour migration (12), although their proportions of the total have changed little. Since the early 2000s, circular migration has also become more common, with migrants moving temporarily for economic opportunities and then returning to their home countries, although the number of annual circular migrants remains unclear (Figs 1.1 and 1.2) (69).

As of 2020, Europe and North America hosted the greatest number of international migrants, followed by northern Africa and western Asia (67). The total numbers and percentages of international migrants by World Health Organization (WHO) region (including migrants, refugees and asylum seekers) are shown in Fig. 1.1. The top three host countries by WHO region are shown in Fig. 1.2.

The number of people who have been forcibly displaced globally continues to increase as a result of conflict, humanitarian and climate-related disasters. UNHCR has estimated the

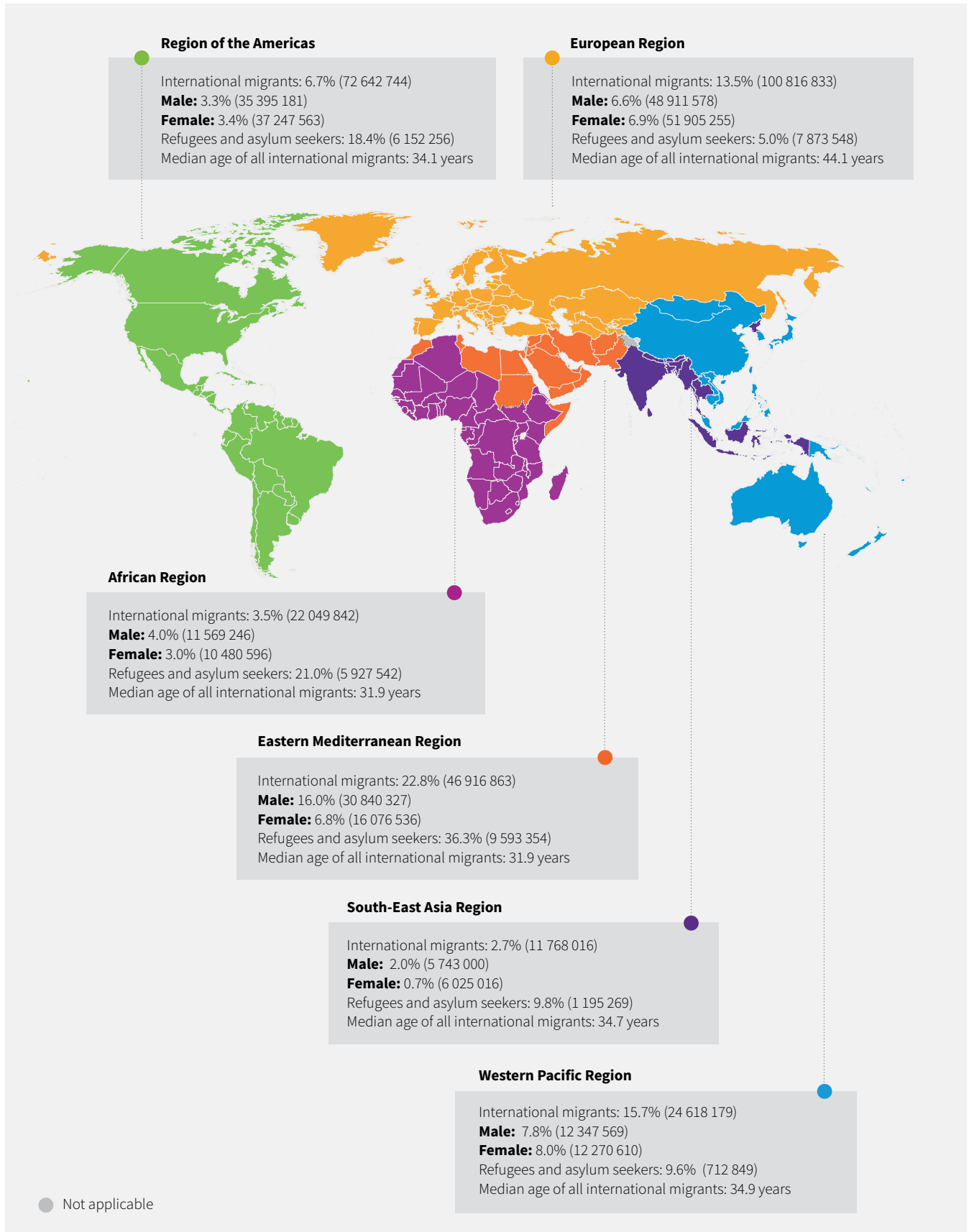
number of forcibly displaced globally to be at 82.4 million (13).¹ Refugees and asylum seekers account for approximately 12% of international migrants, as estimated by the United Nations Department of Economic and Social Affairs (UNDESA) (67), and most of them live in countries adjacent to their country of origin (Fig. 1.2).

Developing countries hosted 86% of the world's refugees and Venezuelan migrants (13). (Note that the term "Venezuelans displaced abroad" is defined by the UNHCR as "persons of Venezuelan origin who are likely to be in need of international protection under the criteria contained in the Cartagena Declaration, but who have not applied for asylum in the country in which they are present" (13).)

More than half of newly recognized refugees during the first half of 2021 were from five countries: the Central African Republic (71 800 refugees), South Sudan (61 700), the Syrian Arab Republic (38 800), Afghanistan (25 200) and Nigeria (20 300). At the same point in time, there were 92 100 newly displaced Venezuelans (refugees, asylum seekers and migrants) in Latin America and the Caribbean (70). By the end of 2020, more than three quarters of the global refugee population (15.7 million) was in a situation of protracted displacement (13).

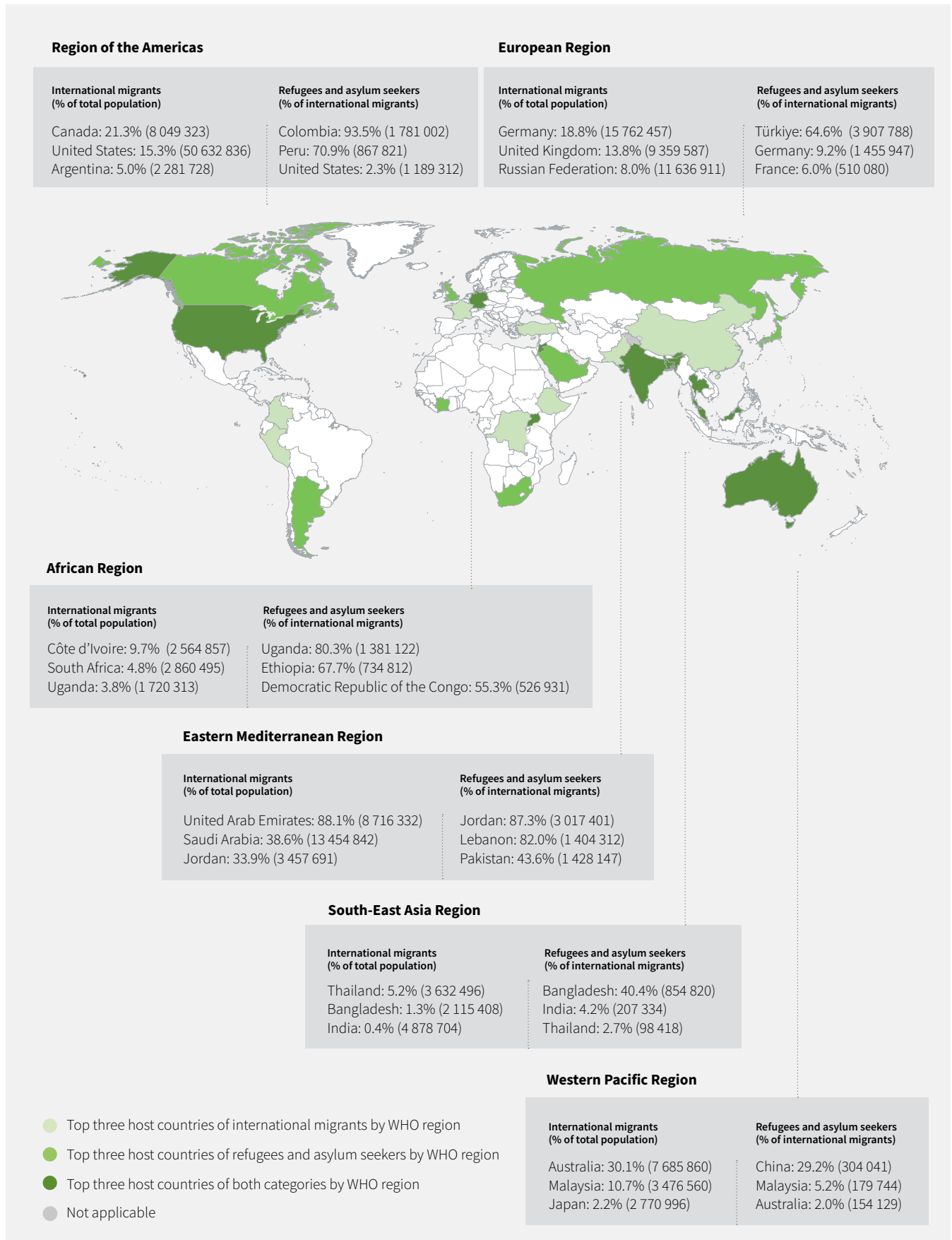
¹ In May 2022, after the writing of this report had been completed, UNHCR announced that the number of people forced to flee conflict, violence, human rights violations and persecution had surpassed 100 million for the first time on record. The number of forcibly displaced people worldwide was already rising towards 90 million by the end of 2021, propelled by new waves of violence or protracted conflict in countries including Afghanistan, Burkina Faso, the Democratic Republic of the Congo, Ethiopia, Myanmar and Nigeria. However, at the time of writing in 2022, the war in Ukraine had displaced 8 million people within the country, and more than 6 million refugee movements from Ukraine had been registered.

Fig. 1.1. International migrants, refugees and asylum seekers (percentage of the total population), by WHO region, mid-2020



Source: United Nations Department of Economic and Social Affairs (67).

Fig. 1.2. International migrants, refugees and asylum seekers in the top three host countries, by WHO region, 2020



Source: United Nations Department of Economic and Social Affairs (67).

1.4 Migratory patterns in WHO regions

Migratory patterns in the six WHO regions vary greatly, depending on travel routes and methods, reasons for displacement and migration, demographics, and the context in which displacement and migration occurs. All of these have important impacts on the health of refugees and migrants.

WHO African Region. Almost 75% of migrants from countries in sub-Saharan Africa remain within the continent. Approximately 20% travel to Europe, North America, the countries of the Gulf Cooperation Council and Asia along the Central Mediterranean Route (the most dangerous), Western Mediterranean Route, Eastern Mediterranean Route, West African Route and Western Balkan Route (see Box 3.1). Fleeing poverty and conflict and seeking better opportunities and environmental conditions remain important drivers. Even so, the COVID-19 pandemic significantly reduced migratory flows within the Region and to Europe due to the restrictions on movement (71–73).

WHO Region of the Americas. Migration towards North America remains prominent, mostly from other parts of the Americas, as well as from Asia (notably China, India and the Philippines). The United States of America is the largest recipient of migrants worldwide, with 18% of total global migrants (51 million) in 2020 (12). The largest migration corridor in the world is between the United States and Mexico, which is a key country of origin, transit and destination. As well as economic factors, displacement and migration from Central America and the Caribbean reflect environmental events, such as droughts and hurricanes, as well as generalized violence

and criminal activity. In 2021 the Bolivarian Republic of Venezuela experienced the largest movement of refugees and migrants worldwide, after the Syrian Arab Republic. More than 5.6 million Venezuelans were outside their country of origin towards the end of 2021; of these, more than 80% had fled to countries in Latin America and the Caribbean, most notably Colombia, Ecuador and Peru (73).

WHO South-East Asia Region. In general, this Region sends migrants to other areas, particularly to North America, Europe, countries in the Gulf Cooperation Council, and Australasia. Flows of international migration include movement from Myanmar to Thailand (74); from Nepal (75), Bangladesh and Bhutan to India (76); from many of the Region's countries to the Maldives (77); and from Timor-Leste to Indonesia (78). Rohingya refugees from Myanmar are the biggest refugee group, with close to 1 million living in Bangladesh (79). There are smaller groups of refugees from Myanmar on the Thailand–Myanmar border (80), Sri Lankans in India, and Bhutanese in Nepal, with diverse refugees in Indonesia waiting to go to Australia (81).

WHO European Region. The main drivers of international migration into Europe are intraregional labour migration as a result of the European Union (EU), people fleeing conflict in the Middle East and sub-Saharan Africa via the Central and Western Mediterranean Routes, labour migration from Asia and Latin America, nationals of central and eastern Europe settling in western and southern Europe, and migration between the Russian Federation and countries of the former Soviet Union.² In 2020 Europe hosted approximately 6.8 million refugees and people in refugee-like situations, with Türkiye alone hosting nearly 3.7 million

² The data presented here do not include the mass displacement resulting from the conflict in Ukraine that began on 24 February 2022.

refugees, about 15% of all people displaced across borders globally. In 2019 the Russian Federation was the major destination country (12 million) and country of origin (11 million) for international migration in the Region (67,73,82,83).³

WHO Eastern Mediterranean Region.

Large flows of labour migration have occurred into, from and within the Region, with much of the intraregional movement focused on the high-income countries of the Gulf Cooperation Council (84). In 2017 the Region's countries hosted 23.8 million migrant workers, about 14.5% of the global total (85). Many countries in this Region remain affected by protracted and unresolved conflicts, including Afghanistan, Somalia, the Syrian Arab Republic and Yemen. These conflicts have resulted in large numbers of refugees, including 6.7 million from the Syrian Arab Republic and 2.6 million from Afghanistan, most of whom are hosted in the Region itself (13,86,87).

WHO Western Pacific Region. In 2020

Australia was among the top 10 host countries, while China and the Philippines were among the top 10 origin countries (12). Malaysia and Singapore are both prominent host and origin countries (73). Migration for seasonal employment is widespread in the Pacific Island nations, with Tonga and Vanuatu sending significant numbers of people to Australia and New Zealand for work in industries such as agriculture and hospitality (88). In 2015 approximately 85%, or 16.2 million, of the world's internally displaced population migrated as a result of natural disasters in Asia and the Pacific (88). The largest sources of refugees in 2020 were China and Viet Nam (89).

With many women migrating during their prime childbearing years, the health needs of women and girls in any given situation are often different from those of men, and they require additional medical services for prenatal, labour and delivery care, and for postpartum care. However, the health of men and boys is also affected by gender-based risks.

1.5 Age and gender

The gender and age distributions of refugees and migrants vary across WHO regions (Fig. 1.1). In most regions the difference between the numbers of males and females is less than 10%, but in the WHO Eastern Mediterranean Region the proportion is almost double for male refugees and migrants. With many women migrating during their prime childbearing years, the health needs of women and girls in any given situation are often different from those of men, and they require additional medical services for prenatal, labour and delivery care, and for postpartum care (22,90–92). However, the health of men and boys is also affected by gender-based risks (Chapter 2).

³ In May 2022, after the writing of this report had been completed, UNHCR announced that the number of people forced to flee conflict, violence, human rights violations and persecution had surpassed 100 million for the first time on record. UNHCR estimated that during the early part of 2022 the war in Ukraine had displaced 8 million within the country and that more than 6 million refugee movements from Ukraine had been registered.

While many countries hosting refugees have policies allowing refugees to access health and social protection services, that access may be partial, entail prohibitive out-of-pocket expenditures and involve additional barriers, including distance to facilities, language and discrimination by providers.

At mid-year in 2020, migrants aged 65 years and older accounted for an estimated 34.3 million (12.2%) of all international migrants, calculated using the foreign-born or foreign population as a proxy for international migrants (67,93).

1.6 Displacement

The UNHCR estimates that 82.4 million people were forcibly displaced worldwide at the end of 2020, and 34.5 million of these were refugees, asylum seekers and Venezuelan migrants (13). These populations should be a focus of efforts to improve population health, given the additional challenges, stressors and health-eroding environmental exposures they may have experienced (94,95). Fig. 1.1 shows the total number and proportion of refugees and asylum seekers by WHO region.

Refugees and other forcibly displaced populations often have distinct protection and health needs. For example, women and girls often lack access to urgent reproductive health services and are at increased risk of sexual violence (59,90). While many countries hosting refugees have policies allowing refugees to access health and social protection services, that access may be partial, entail prohibitive out-of-pocket expenditures and involve additional barriers, including distance to facilities, language and discrimination by providers (96,97).

The sudden arrival of large numbers of refugees and asylum seekers can severely test public health and social protection services (98,99). Examples of particular challenges include a lack of access to health insurance, barriers to accessing care (including language, previous interactions with medical care services, and understanding of diagnoses, treatment options and use of medicines), the quality of care and satisfaction with care (including a lack of continuity of care and cultural sensitivity, and barriers to understanding and navigating the health system). Women and girls often lack access to urgent reproductive health services and are at increased risk of sexual violence (59,90). In response to these challenges, global assessments have been conducted to report on the ability of various states to address influxes of refugees and migrants (98,100). These assessments highlight potential strains on health care systems, which may be due to a country's size or resources or its position as transit country in the migratory pathway or to receiving a large displaced population; they emphasize the need for international assistance to address the risk of infectious diseases (101,102).

1.7 Health and the dynamics of global displacement and migration

Displacement and migration are major determinants of health for large numbers of people worldwide (103). This report describes in detail various aspects of health and migration, taking into account a number of frameworks for thinking about how migration affects the health of populations (104).

Understanding the determinants of displacement and migration can help health systems, policy-makers and practitioners safeguard and promote the health of refugees and migrants (105,106). For example, a comparative health advantage observed among some refugees and migrants is partly the result of selection bias: younger, healthier persons are able to migrate due to the health requirements that some need to fulfil prior to departure,



Health education sessions help promote healthy eating and prevent diabetes in Jordan's Zaatari refugee camp. © WHO / Tania Habjouqa

especially if seeking international employment (107,108). The health of refugees and migrants compared with that of host populations after arrival is also partly related to the overall health of the host country's populations, as well as to the services that the refugees and migrants are able to access (109).

Displacement and migration do not happen in a vacuum. As summarized in the social-ecological model in Fig. 1.3, the contexts that surround migration – before, during, after and on return – influence the health of refugees and migrants as much as their individual characteristics. Population growth and decline are major drivers of migration as people move to access resources. People may choose to migrate to seek economic opportunity, medical treatment, educational opportunity or an improved standard of living (111). Others may instead be forced to leave their homes or places of residence (displacement). Countries may implement policies to encourage or discourage migration depending on their own needs, to respond to the sensitivities of their own labour force, to support social services, for humanitarian reasons or in response to political pressures (24,112,113). Additionally, factors such as ageing, urbanization, conflict and climate change may influence trends in both displacement and migration and the health needs of refugees and migrants (114).

Fig. 1.3 illustrates the determinants that can influence the health and well-being of refugees and migrants at different levels, starting from that of the individual and becoming intertwined throughout the four phases of displacement and migration. It highlights the importance of micro-, meso- and macro-level factors that influence the health vulnerabilities of refugees and migrants during all four phases. For example, when someone with

a chronic disease moves from one place to another, their health situation may be worsened during the migration or transit phase because they have limited or intermittent access to health care services (115). Another example includes changes in dietary patterns after migration, which may increase the risk for diseases (108) or, conversely, result in improved health outcomes (116–118).

This social-ecological model represents personal health as the product of multiple factors, cascading outwards from individual characteristics and behaviours to the social and economic conditions that shape people's lives (119). Determinants of health at various levels of the model affect the health of refugees and migrants differently during the different phases of displacement and migration. For example, while a language barrier might not exist in the country of origin, it becomes a relatively significant barrier for a refugee or migrant seeking health care and utilizing health services. Similarly, belonging to a minority group might lead to persecution and eventually to displacement, but might also become the most important reason to be granted protection in another country (refugee status, for example). The intersections of the determinants of health and the different phases of migration with those of the life course (120) may result in distinct, immediate health outcomes, such as in the tragic cases of preventable deaths during transit or over time, for example, in the delayed onset of illness (83,115,119,120).

A comprehensive approach to protecting and promoting the health of refugees and migrants must take into account the full set of determinants of health in each context, both throughout the displacement and migration process and across the life course. In many ways, policies that promote the health of refugees and migrants also promote the health of the larger population, including the host population (121–123).

Fig. 1.3. Determinants of health and phases of migration

Source: reproduced by permission of the publisher from Dahlgren & Whitehead (110).

The experience of displacement and migration is itself a determinant of health, and examining different phases of displacement and migration helps to illuminate its impact (111). Important cross-cutting factors include sex, age, race or ethnicity, and a variety of socioeconomic conditions experienced during the four phases of migration (124).

In the coming decades, several trends will influence both displacement and migration and the health needs of refugees and migrants. These trends are particularly important for policy-makers who are considering how refugees and migrants contribute to and require different responses from health systems.

1.7.1 Urbanization

Urbanization is perhaps the salient global demographic shift of the first half of the 21st century, with more than half the world now living in urban areas (125). Urbanization refers to the movement of persons from more rural to more urban, or densely populated, areas. People often move to urban centres, either in their home countries or internationally (126), to seek economic opportunity and access to resources, such as education, employment, health care and efficient governance. Urbanization provides opportunities for social and economic progress (127,128); however, adapting to urban living is complex, given the associated reductions in physical activity, increased pollution, overcrowding, poor nutrition, risk of communicable diseases, changes in land use, urban heat island effects, and shifts in lifestyle choices, nutritional patterns and human behaviours (129,130). Women living in poor urban areas are disadvantaged in terms of access to employment, health facilities and secure housing, and their ability to complete their education, and they are more subject to the social and economic effects of crises such as the COVID-19 pandemic (131).

Urbanization may also be associated with poor mental health when conditions include overcrowding, limited resources and the loss of social support systems (132). Key to assessing the influence of urbanization on health is an understanding of health inequities (129) and of the differences between urban dwellers with assets versus urban dwellers without assets. Urbanization can also be associated with better health indicators, particularly for persons who improve their social and economic well-being as a result of moving to more urbanized areas. Given that the number of urban dwellers is projected to grow to 6.7 billion by 2050, focusing on the health of urban refugees and migrants has become urgent (125).

1.7.2 Brain circulation: brain drain versus brain gain

The movement of skilled labour may result in a so-called brain drain, typically from lower-income countries, and a brain gain in higher-income countries in a process known more generically as brain circulation (133,134). Host countries benefit from brain gain – that is, the migration of highly skilled and productive trainees and workers, particularly those who conduct research and provide medical care. Including people with diverse experience and backgrounds in high-skill workplaces can advance technologies, science and governance. Additionally, migrants may return home with new skills or share their skills or knowledge with networks in their countries of origin.

Conversely, brain drain may worsen the availability of services, such as health care, if highly skilled doctors and nurses leave lower-income countries seeking better economic opportunity. Studies of skilled health care workers who left their home countries found that key to the decision to migrate were interests in professional advancement, social

.....

The experience of displacement and migration is itself a determinant of health, and examining different phases of displacement and migration helps to illuminate its impact.

.....

support and finding intellectual communities (135). As a result of their departure, fewer skilled workers were left to address the needs of the populations remaining in their countries of origin. The departure of nurses, for example, reduced access to and services for populations in their home countries (135–137). However, this loss may be partly offset because the flow of human capital and talent to other countries can lead to positive outcomes in terms of remittances and of a transfer of skills back to their home countries (138).

1.7.3 Sending money home

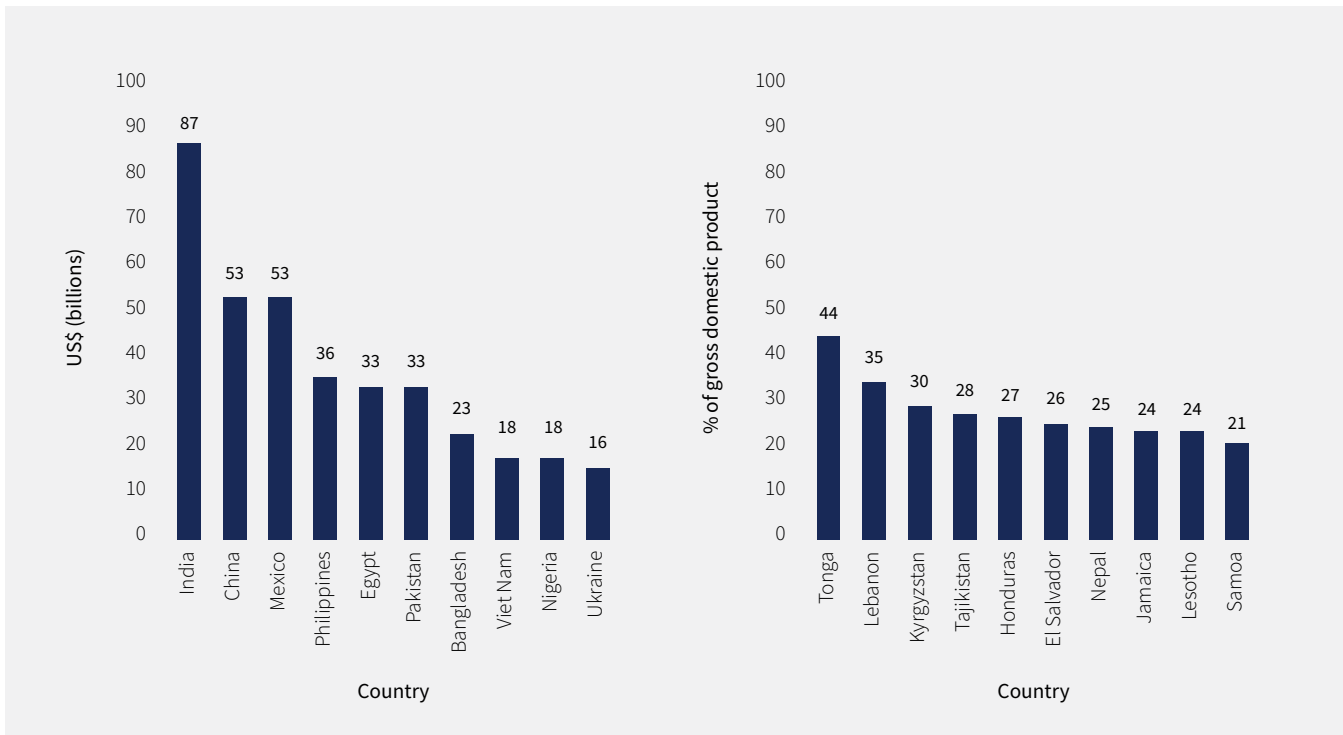
Remittances are an important and positive economic result of migration for migrants themselves and for family and friends remaining in their home countries. Once migrants have accessed economic opportunities, they often send remittances to their families. Remittances account for a large fraction of the global movement of funds. Despite predictions that remittances would fall due to the COVID-19 pandemic (in part as a result of travel restrictions and the economic downturn), remittances proved to be resilient (139). The economic recovery in 2021 followed the resilience of remittance flows seen in 2020, which declined by a modest 1.7% to US\$ 549 billion in the face of one of the deepest global recessions. Remittances now stand at more than threefold above official development assistance and are more than 50% higher than foreign direct investment, excluding in China. This underscores the importance of remittance flows in supporting spending in recipient countries during periods of economic hardship (140).

In many low- and middle-income countries, migrants stepped up their support to families back home, especially to countries affected by the spread of the COVID-19 Delta variant. Their ability to help was enabled by a welcome

pickup in economic activity and employment in countries that are major destinations for migrants, grounded partly in the exceptional COVID-19 emergency fiscal stimuli and accommodative monetary policies.

In most other areas, remittances have also recovered strongly, registering growth of 5–10% in Europe and Central Asia, the Middle East and northern Africa, southern Asia and sub-Saharan Africa, but at a slower pace of 1.4% in eastern Asia and the Pacific, excluding China (139). The key contributing factors are the willingness of migrants to support their families in times of need, together with the fiscal stimuli and employment support programmes implemented in the United States and European destination countries, which provided many migrants with the financial wherewithal to increase support to their families at home. In the Gulf Cooperation Council countries and the Russian Federation, the recovery of outward remittances was also facilitated by stronger oil prices and the resulting pickup in economic activity.

In 2021 the top five remittance recipients in current US dollars were India, China, Mexico, the Philippines and Egypt. As a share of gross domestic product (GDP), the top five remittance recipients in 2021 were smaller economies: Tonga, Lebanon, Kyrgyzstan, Tajikistan and Honduras (Fig. 1.4). The United States was the largest source country for remittances in 2020, followed by the United Arab Emirates, Saudi Arabia and Switzerland. Remittances increase or maintain consumer spending and soften the blow of economic hardship, such as during the COVID-19 pandemic. Remittances are expected to continue growing in 2022, but there are challenges, such as the COVID-19 crisis, which still poses one of the greatest risks to flows to low- and middle-income countries, especially as fiscal stimulus programmes in migrant

Fig. 1.4. Top remittance recipients among low- and middle-income countries, 2021 estimates

Source: reproduced by permission of the publisher from Ratha et al. (139).

destination countries cannot continue indefinitely (140).

1.7.4 Left-behind families

Migration affects not only people who move but also their family and community members who remain: an estimated 193 million family members of migrant workers are left behind (i.e. family members who remain in the country of origin) (141). Outward migration can lead to brain drain (section 1.7.2) and care drain in communities of origin: migration of individuals to high-income countries to undertake care jobs for the host population can create a care deficit for their own families, especially for children and older people (142–144). More research is needed to understand the health effects on family members who are left behind. Whether labour migration can help to enhance the well-being of children affected by labour

migration depends on factors such as the legal continuum of care, opportunities for children to have contact with their parents and the support received from guardians and the community. Migration can also help to lift families from poverty, where remittances are used to fund health care, medicine and nutritious food; create autonomy for women; and provide opportunities for the families and communities of those who migrate (14–16). At the same time, several reviews and meta-analyses show negative health effects on the left-behind children of migrant workers. These include, for example, the unreliability of remittances, which may disrupt health care for children who are left behind (145–147). Children who stayed behind in their home country also faced increased risks for depression, conduct disorder, substance use, and wasting and stunting relative to the children of non-migrants (146). Differences

between the children of migrants and non-migrants were not found for other outcomes around nutrition, abuse, diarrhoea or unintentional injury.

Family separation can affect the health outcomes of the families of both international and internal migrants. However, despite the potential negative health outcomes, economic opportunities remain a significant motivation for migration.

1.7.5 Discrimination and xenophobia

While migration provides many benefits, refugees and migrants may face hateful treatment or attitudes. Xenophobia or othering is the treatment of people as outsiders because of their language, culture, appearance or place of birth. Xenophobia may expose refugees and migrants in host countries to discrimination, mistreatment or violence, and it has serious public health consequences. In addition to limiting access to health services, xenophobia may also lead to migrants developing chronic stress syndrome and a variety of other problems, such as anxiety, sleep disorders and depression (148–151); it can also lead to health systems and health care providers being unaware of and unresponsive to the health needs of refugees and migrants, and to the exclusion of the most vulnerable among them (149,152).

1.7.6 People smuggling and human trafficking

While much migration occurs without contravening laws or regulations, a significant yet unmeasurable portion of migrants is exploited by criminal networks. Although different in legal terms, people smuggling and human trafficking share many similarities in how they are carried out, and are sometimes hard to distinguish from each other.

The smuggling of migrants is defined in the United Nations *Protocol Against the Smuggling of Migrants by Land, Sea and Air* as the "procurement, in order to obtain, directly or indirectly, a financial or other material benefit, of the irregular entry of a person into a State Party of which the person is not a national or a permanent resident" (153).

In contrast, trafficking in human beings is defined by the United Nations *Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children* as the "recruitment, transportation, transfer, harbouring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation" (154).

There are few data about the health status or specific health care needs of smuggled refugees and migrants or those who are trafficked (155,156). The absence of good data also reflects the complexities of gathering information about "mixed migration", the term applied when a number of people are travelling together for different reasons but using the same routes and means of transport, often with false or no official documents (157).

According to the United Nations Office on Drugs and Crime's Observatory on Smuggling of Migrants, many smuggled refugees and migrants are subject to physical and psychological abuse perpetrated by a variety of actors, including smugglers but also private individuals, non-state armed groups and state authorities (158). For example, research suggests that smuggled migrants from western Africa, northern Africa and the central Mediterranean undertake huge risks while crossing the desert or sea. Many lack food

and water, and some have seen their travel companions die as a result (158).

Women and girls face serious health risks, especially if they are simultaneously breastfeeding and taking care of children or are pregnant, or a combination of these. Similar to children and older people, they are more likely to be abandoned during a smuggling journey. Moreover, abuses are highly gendered (159). Whereas women and girls are more likely to be exposed to sexual violence and to lack access to health services, men and boys (the majority of smuggled people on most routes) also experience physical violence, forced labour and inhuman and degrading treatment.

The enforcement of certain laws may also have implications for health. The detention of irregular migrants by government authorities often involves exposure to insanitary and dangerous conditions in detention centres, as well as to food and water deprivation. Abuse and violence were commonly reported in a study of those who arrived in Italy using the Central Mediterranean Route (159).

Policies and programmes that separate families, limit access to medical or social services, or condone or promote violence, discrimination, prolonged detention or illicit trafficking yield poor health.

The health implications of conditions along migrant smuggling routes make it all the more urgent to pursue Target 10.7 of the Sustainable Development Goals (SDGs), which commits the international community to facilitating the orderly, safe, regular and responsible migration and mobility of people.

1.7.7 Climate change

Climate-related displacement and migration are emerging as growing international concerns (160,161). Recent studies suggest that the impact of anthropogenic climate change may already be felt across 80% of the world's land area, which has 85% of the population (162).

Although the link between climate change and the movement of people is complex, climate change is undoubtedly already shifting patterns of mobility and will increasingly do so. Climate migrants are defined as "persons who, predominantly for reasons of sudden or progressive change in the environment due to climate change, are obliged to leave their habitual place of residence, or choose to do so, either temporarily or permanently, within a State or across an international border" (34).

Rapid-onset climate-related crises are already displacing large numbers of people. In 2020, for example, of the 40.5 million newly internally displaced people, 76% (30.7 million) were forced to move by disasters, virtually all of which were weather related, even if not all were directly attributable to climate change. In comparison, 24% (9.8 million) were displaced by conflict and violence (47). In addition, one of the most recent models, and the only one focusing on people internally displaced by slow-onset climate processes, estimates that 140 million people could be internally

displaced by 2050 in only sub-Saharan Africa, Latin America and southern Asia (160).

Often, climate change affects human health directly, such as when hazards cause injuries and deaths. The effects of climate change can also be indirect, brought about through factors such as changes in the epidemiological patterns of vector-borne diseases due to shifts in mean temperatures, increased air pollution from wildfires, or the diminishing availability of food and water. Lastly, climate change affects human health through complex interactions with the cultural, social, economic and political milieux in which it takes effect. In some places, it may contribute to risks of conflict and violence by intensifying disputes over scarce resources, reducing economic opportunities, and straining public institutions and infrastructure (163). At this level, climate change acts as a risk multiplier by compounding the effects of pre-existing social and political determinants of health (164).

Quantifying the impact of climate change on human mobility is difficult for several reasons. The key challenge is that climate change acts as a direct driver of migration, and it also influences a range of additional environmental, economic, social, demographic and political drivers of displacement and migration (165,166). Other challenges include logistic difficulties in collecting reliable data and methodological inconsistencies across jurisdictions; the fact that, at least for now, most movements of people happen over short distances and not across international borders; and the almost complete lack of quantitative information about people displaced by slow-onset processes (163,167).

1.8 Health and migration policies

Health and migration policies should be applied in countries of origin, transit and destination and be formulated with the participation of refugees and migrants themselves, in line with wider efforts to include mobile populations within health systems. The Comprehensive Refugee Response Framework formulated in 2016 provides pragmatic and socially inclusive guidelines, some of which can be applied to a wide variety of contexts (168–170).

Policies in countries of origin, transit and destination can promote health in a variety of ways – for example, policies that provide adequate housing, food, medical care, education, work conditions; equitable treatment; and economic opportunities (171). Conversely, policies and programmes that separate families, limit access to medical or social services, or condone or promote violence, discrimination, prolonged detention or illicit trafficking yield poor health (109). For example, political stability is associated with improved health for populations (172,173).

Optimizing the policies that are put in place to improve the health of refugees and migrants and host populations requires engaging with the target communities themselves. Including refugees and migrants in health policies is consistent with the universal values of the SDGs and the pledge to leave no one behind (174). Providing access to basic care and preventive treatment aligns with global standards for human rights. Access to services includes universal health coverage (UHC) and a primary health care (PHC) approach, including services such as language translation services and culturally sensitive case management.

1.8.1 Key international frameworks

Health and displacement and migration are integrally linked to the three agendas of global health, global development and migration governance. At the international level, these global agendas have enshrined addressing the needs of displaced populations and migrants as strategic areas that are key to achieving policy goals. Numerous frameworks, agreements and resolutions have been forged during the last decade within national, regional and multilateral platforms. The two global compacts (the *Global compact on refugees* (175) and the *Global compact for safe, orderly and regular migration* (176)), multiple World Health Assembly resolutions and decisions (2008, 2017 and 2018), two global consultations on migration and health (2010 and 2017), the 2030 Agenda for Sustainable Development and the United Nations Political Declaration of the High-level Meeting on Universal Health Coverage (2019) provide the basis to advance the formulation of policy and promote multisectoral action to include, protect and integrate refugees and migrants (175–181).

One of the key regulations relevant to the context of displacement and migration is the International Health Regulations (182). While the International Health Regulations are not specific to refugees and migrants, they are legally binding and oblige Member States to develop specific public health core capacities, in particular at points of entry (i.e. international ports, airports and ground crossings) to prevent, protect against, control and provide a public health response to the international spread of diseases, with a precautionary approach.

At the Special Session of the World Health Assembly, a decision was taken to negotiate an international instrument on pandemic preparedness and response that will take into consideration the migratory phenomenon and

the needs of refugees and migrants. This could promote better transparency, accountability and management of future public health emergencies (183).

At the heart of these efforts is ensuring the mainstreaming of displacement and migration within the health agenda and of health within the displacement and migration agenda (184). Implementing this vision requires a pragmatic effort across the following three focus areas.

Integrated health needs. The first is to ensure that the health needs of refugees and migrants are applied across the health sector and are explicitly integrated into national health systems and programmes. For instance, the critical importance of migration is recognized in the *Global plan to end TB 2018–2022* (185), while ensuring inclusive and sensitive care and prevention services for refugees and migrants is a key pillar of the framework of the End TB Strategy (186).

Beyond the health sector. Secondly, similar to the general population, solutions for improving the health of refugees and migrants cannot be found within the health sector alone (187). To meaningfully address the underlying determinants and inequities as part of the development agenda requires intersectoral action. There is a need to improve migration health literacy within the foreign affairs, labour migration, travel, trade and immigration-control sectors. A positive development has been the inclusion of the health and migration agenda at various high-level regional forums within regional and subregional blocs. Health and migration have emerged as a strategic focus for discussions around labour migration, trade and economic cooperation. It is also becoming apparent that regional and subregional initiatives on cross-border travel, trade and economic cooperation can be important drivers of action

for the health of migrants. Examples of regional and subregional migration governance initiatives that include health as a key priority are the African Union Migration and Health Programme (188); the 2018 Quito Process between countries in Latin America and the Caribbean receiving Venezuelan refugees and migrants (189,190); the Colombo Process for labour-sending countries of origin in Asia (191); and the European Commission's migration health programme (192).

Better information. Thirdly, there is a need for improving health information and research platforms to promote the development of evidence-informed policy and practices. Health information systems (HIS), routine health surveys and registries, and other platforms that guide health care decisions often exclude refugees and migrants and do not take account of human mobility. Therefore, it is essential to integrate such modules within a rigorous ethical and data protection framework (193). The challenges of and potential for improving data collection and analysis are dealt with in greater detail in Chapters 5 and 6.

During the last decade, there has been growing recognition that the health needs of refugees and migrants are a global health priority. However, a number of practical considerations must be taken into account. These include identifying and then training staff in key government programmes and structures to take action for refugee and migrant health at the national, regional and local levels. Investments are also needed to support technical cooperation to address health in displacement and migration, galvanize intersectoral action and build evidence platforms to guide action. The resources and knowledge of diaspora populations should also be engaged whenever possible (194–196).

Formulating policies and programmes rooted in emergency preparedness and response remains essential. However, to build resilient, refugee- and migrant-sensitive health systems, structural policies are needed that recognize long-term displacement, regular migration and mixed migration flows. Investment in research needs to be linked to policy-making, and it is crucial to enhance capacities and mentorship among researchers in developing regions. Translating knowledge to policy effectively means both generating rigorous evidence and ensuring that this evidence informs the policy-making process.

While the COVID-19 pandemic will likely push health systems worldwide towards a greater focus on public and population health, several governments have taken proactive measures to promote a refugee- and migrant-inclusive approach to their COVID-19 response and recovery. For example, Peru approved temporary health coverage for refugees and migrants suspected of having or who test positive for COVID-19 (197). Portugal temporarily lifted all barriers and provided free access to their national health service, including for irregular migrants (198). Singapore set up medical facilities and triage clinics in dormitories for migrant workers and provided them with food and other necessities (199). In the United Kingdom, charges were waived for the diagnosis and treatment of COVID-19 for all non-nationals, regardless of their residency or migratory status (200).

Despite these positive developments, many countries have explicitly stated to international human rights bodies that they cannot or do not want to provide health protection, including essential health services, to migrants, and especially to irregular migrants (201). COVID-19 is providing a powerful impetus for change: evidence prior to 2021 shows that, until recently, few countries included refugees

and migrants in their national pandemic preparedness plans or in broader health policies (202,203). The rhetoric of leaving no one behind is futile if populations of refugees and migrants continue to be restricted in their abilities and rights to access affordable health and social protection services.

1.8.2 WHO resolutions and action plans

Within the United Nations, WHO has primary responsibility for promoting and achieving health for all and UHC and PHC within the context of the 2030 Agenda for Sustainable Development and its associated SDGs (180). WHO works with its Member States to achieve the highest level of health for all people by pursuing UHC. Since 2019, WHO's work and activities have been carried out within its Thirteenth General Programme of Work 2019–2023 (GPW13), which was approved by the Seventy-first World Health Assembly in resolution WHA71.1 in 2018 (204). In May 2022 the Health Assembly agreed to extend the timeline of GPW13 to 2025 (205).

GPW13 focuses on the Triple Billion Targets to achieve measurable impacts on people's health at country level (204). The GPW13 framework prioritizes guiding principles that aim to promote health, keep the world safe and serve the vulnerable. The framework re-emphasizes the pledges of the 2030 Agenda to leave no one behind, including refugees and migrants (180).

More specifically, policies that refer to health and displacement and migration have created awareness that these concepts are interlinked. Resolution WHA61.17 (Health of migrants) recognized that multiple dimensions of migration can affect health, that some groups of persons who migrate may have elevated health risks and that the timely and sensitive tracking of data, coordination

across organizations and exchange of information could yield improved outcomes (177,206). Similarly, resolution WHA70.15 (Promoting the health of refugees and migrants) urged Member States to "identify and collect evidence-based information, best practices and lessons learned in addressing the health needs of refugees and migrants in order to contribute to the development of a draft global action plan on promoting the health of refugees and migrants" (207). This was translated into a framework that encompasses the priorities and guiding principles necessary to promote the health of refugees and migrants. Accordingly, Member States took note of the WHO *Global action plan on promoting the health of refugees and migrants, 2019–2023 (GAP)* (208), following from the United Nations' 2016 *New York declaration for refugees and migrants* (170), which acknowledges specific national commitments adopted by Member States, and the priorities and guiding principles necessary for promoting the health of refugees and migrants, which were adopted at the Seventy-second World Health Assembly in 2019 (209).

WHO's GAP is fully aligned with the framework of priorities and guiding principles to promote the health of refugees and migrants (207), the United Nations' SDGs (180), the *Global compact on refugees* and the *Global compact for safe, orderly and regular migration* (175,176). Both the GAP and the framework of priorities and guiding principles were developed in close collaboration with the IOM, the UNHCR and other relevant stakeholders. A monitoring framework is being developed to track progress on implementing the GAP.

WHO's Health and Migration Programme was created as a strategic commitment to provide global leadership on health and migration issues, including helping to implement the GAP at the global, regional and country

levels and to address all of its priorities. These include implementing public health interventions, promoting the continuity and ensuring the quality of health care, engaging in advocacy to mainstream health policies that are sensitive to the needs of refugees and migrants, and strengthening capacity to tackle social determinants of health, as well as monitoring trends, strengthening HIS and developing an accountability framework and indicators to monitor and report on progress made in implementation and communication. This report is a response to these priorities.



References

1. Zhunio MC, Vishwasrao S, Chiang EP. The influence of remittances on education and health outcomes: a cross country study. *Appl Econ*. 2012;44(35):4605–16. doi:10.1080/00036846.2011.593499.
2. Amega K. Remittances, education and health in sub-Saharan Africa. *Cogent Econ Finance*. 2018;6(1):1516488. doi:10.1080/23322039.2018.1516488.
3. International Labour Organization, Organisation for Economic Co-operation and Development. How immigrants contribute to developing countries' economies. Paris: Organisation for Economic Co-operation and Development; 2018 (https://www.oecd-ilibrary.org/development/how-immigrants-contribute-to-developing-countries-economies_9789264288737-en, accessed 9 January 2022).
4. Report on the health of refugees and migrants in the WHO European Region: no public health without refugees and migrant health. Copenhagen: WHO Regional Office for Europe; 2018 (<https://apps.who.int/iris/handle/10665/311347>, accessed 9 January 2022).
5. Kumar C, Oommen E, Fragapane F, Foresti M. Beyond gratitude: lessons learned from migrants' contribution to the COVID-19 response. London: Overseas Development Institute; 2021 (https://cdn.odi.org/media/documents/hmi-migrant_key_workers-working_paper-final.pdf, accessed 9 January 2022).
6. Abubakar I, Aldridge RW, Devakumar D, Orcutt M, Burns R, Barreto ML et al. The UCL–Lancet commission on migration and health: the health of a world on the move. *Lancet*. 2018;392:2606–54. doi:10.1016/S0140-6736(18)32114-7.
7. Nielsen R, Akey JM, Jakobsson M, Pritchard JK, Tishkoff S, Willerslev E. Tracing the peopling of the world through genomics. *Nature*. 2017;541:302–10. doi:10.1038/nature21347.
8. Esipova N, Ray J, Pugliese A. How the world views migration. Geneva: International Organization for Migration; 2015 (https://publications.iom.int/system/files/pdf/how_the_world_gallup.pdf, accessed 28 March 2022).
9. Markaki Y, Longhi S. What determines attitudes to immigration in European countries? An analysis at the regional level. *Migr Stud*. 2013;1(3):311–37. doi:10.1093/migration/mnt015.
10. Refugees and migrants in times of COVID-19: mapping trends of public health and migration policies and practices. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/handle/10665/341843>, accessed 9 January 2022).
11. Connor P. More than nine-in-ten people worldwide live in countries with travel restrictions amid COVID-19. In: Pew Research Center [website]. Washington (DC): Pew Research Center; 2020 (<https://www.pewresearch.org/fact-tank/2020/04/01/more-than-nine-in-ten-people-worldwide-live-in-countries-with-travel-restrictions-amid-covid-19/>, accessed 9 January 2022).
12. International migration 2020: highlights. New York: United Nations Department of Economic and Social Affairs; 2020 (<https://www.un.org/en/desa/international-migration-2020-highlights>, accessed 9 January 2022).
13. Global trends: forced displacement in 2020. Geneva: United Nations High Commissioner for Refugees; 2021 (<https://www.unhcr.org/60b638e37/unhcr-global-trends-2020>, accessed 23 November 2021).
14. Dumont J-C, Liebig T. Is migration good for the economy? Paris: Organisation for Economic Co-operation and Development; 2014 (<https://www.oecd.org/migration/OECD%20Migration%20Policy%20Debates%20Numero%202.pdf>, accessed 6 September 2021).
15. Goldin I, Cameron G, Balarajan M. Exceptional people: how migration shaped our world and will define our future. Princeton (NJ): Princeton University Press; 2012.
16. d'Albis H, Boubtane E, Coulibaly D. Macroeconomic evidence suggests that asylum seekers are not a "burden" for Western European countries. *Sci Adv*. 2018;4(6):eaq0883. doi:10.1126/sciadv.aaq0883.
17. Masters R, Anwar E, Collins B, Cookson R, Capewell S. Return on investment of public health interventions: a systematic review. *J Epidemiol Community Health*. 2017;71(8):827–34. doi:10.1136/jech-2016-208141.
18. Woetzel J, Madgavkar A, Rifai K, Mattern F, Bughin J, Manyika J et al. People on the move: global migration's impact and opportunity. New York: McKinsey Global Institute; 2016 (<https://www.mckinsey.com/~media/mckinsey/industries/public%20and%20social%20sector/our%20insights/global%20migrations%20impact%20and%20opportunity/mgi-people-on-the-move-full-report.pdf>, accessed 9 January 2022).
19. Aldridge RW, Nellums LB, Bartlett S, Barr AL, Patel P, Burns R et al. Global patterns of mortality in international migrants: a systematic review and meta-analysis. *Lancet*. 2018;392:2553–66. doi:10.1016/S0140-6736(18)32781-8.
20. Fernández-Reino MF. The health of migrants in the UK. Oxford: The Migration Observatory at the University of Oxford; 2020 (<https://migrationobservatory.ox.ac.uk/wp-content/uploads/2020/08/Briefing-The-Health-of-Migrants-in-the-UK.pdf>, accessed 4 April 2022).

21. Lebano A, Hamed S, Bradby H, Gil-Salmerón A, Durá-Ferrandis E, Garcés-Ferrer J et al. Migrants' and refugees' health status and healthcare in Europe: a scoping literature review. *BMC Public Health*. 2020;20:1039. doi:10.1186/s12889-020-08749-8.
22. Heslehurst N, Brown H, Pemu A, Coleman H, Rankin J. Perinatal health outcomes and care among asylum seekers and refugees: a systematic review of systematic reviews. *BMC Med*. 2018;16:89. doi:10.1186/s12916-018-1064-0.
23. Abbas M, Aloudat T, Bartolomei J, Carballo M, Durieux-Paillard S, Gabus L et al. Migrant and refugee populations: a public health and policy perspective on a continuing global crisis. *Antimicrob Resist Infect Control*. 2018;7(1):113. doi:10.1186/s13756-018-0403-4.
24. Bozorgmehr K, Razum O. Effect of restricting access to health care on health expenditures among asylum-seekers and refugees: a quasi-experimental study in Germany, 1994–2013. *PLOS One*. 2015;10:e0131483. doi:10.1371/journal.pone.0131483.
25. Gottlieb N, Trummer U, Davidovitch N, Krasnik A, Juárez SP, Rostila M et al. Economic arguments in migrant health policymaking: proposing a research agenda. *Glob Health*. 2020;16:113. doi:10.1186/s12992-020-00642-8.
26. Trummer U, Novak-Zezula S, Renner A, Wilczewska I. Cost savings through timely treatment for irregular migrants and European Union citizens without insurance. *Eur J Public Health*. 2018;28(suppl 1):cky048.061. doi:10.1093/eurpub/cky048.061.
27. Convention and protocol relating to the status of refugees. Geneva: United Nations High Commissioner for Refugees; 1951 (<https://www.unhcr.org/3b66c2aa10>, accessed 9 January 2022).
28. Hannigan A, O'Donnell P, O'Keeffe M, MacFarlane A. How do variations in definitions of "migrant" and their application influence the access of migrants to health care services? Copenhagen: WHO Regional Office for Europe; 2016 (<https://apps.who.int/iris/handle/10665/326307>, accessed 9 January 2022).
29. Statistical Commission: report on the fifty-second session (1–3 and 5 March 2021). New York: United Nations Department of Economic and Social Affairs; 2021 (Official records, 2021, Supplement No. 4; <https://unstats.un.org/unsd/statcom/52nd-session/documents>, accessed 9 January 2022).
30. Recommendations on statistics of international migration, revision 1. New York: United Nations Department of Economic and Social Affairs; 1998 (https://unstats.un.org/unsd/publication/seriesm/seriesm_58rev1e.pdf, accessed 9 January 2022).
31. Wickramage K, Vearey J, Zwi AB, Robinson C, Knipper M. Migration and health: a global public health research priority. *BMC Public Health*. 2018;18:987. doi:10.1186/s12889-018-5932-5.
32. Ward M, Kristiansen M, Sørensen K. Migrant health literacy in the European Union: a systematic literature review. *Health Educ J*. 2019;78(1):81–95. doi:10.1177/0017896918792700.
33. Anderson B, Blinder S. Who counts as a migrant? Definitions and their consequences. Oxford: The Migration Observatory at the University of Oxford; 2019 (<https://migrationobservatory.ox.ac.uk/wp-content/uploads/2017/01/Briefing-Who-Counts-as-a-Migrant-Definitions-and-their-Consequences.pdf>, accessed 9 January 2022).
34. Glossary on migration. Geneva: International Organization for Migration; 2019 (https://publications.iom.int/system/files/pdf/iml_34_glossary.pdf, accessed 6 November 2021).
35. International migration report 2017: highlights. New York: United Nations Department of Economic and Social Affairs; 2017 (https://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2017_Highlights.pdf, accessed 9 January 2022).
36. UNHCR master glossary of terms [online database]. Geneva: United Nations High Commissioner for Refugees; 2021 (<https://www.unhcr.org/glossary/>, accessed 21 January 2022).
37. ILO global estimates on international migrant workers: results and methodology, second edition. Geneva: International Labour Organization; 2021 (https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_652001.pdf, accessed 16 January 2022).
38. Cross-national comparisons of internal migration: an update on global patterns and trends. New York: United Nations Department of Economic and Social Affairs; 2013 (Technical Paper No. 2013/1; <https://www.un.org/en/development/desa/population/publications/pdf/technical/TP2013-1.pdf>, accessed 9 January 2022).
39. Lucas REB. Internal migration in developing economies: an overview of recent evidence. *Geopolit Hist Int Relat*. 2016;8(2):159–91 (<https://www.jstor.org/stable/26805968?refreqid=excelsior%3A8f12f5f84e2197aacbf4cddcf79600d2>, accessed 9 January 2022).
40. Road map for development of policy framework for the inclusion of internal migrant workers in India. Geneva: International Labour Organization; 2020 (https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-new-delhi/documents/publication/wcms_763352.pdf, accessed 22 November 2021).
41. Lagakos D. Urban–rural gaps in the developing world: does internal migration offer opportunities? *J Econ Perspect*. 2020;34(3):174–92 (<https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.34.3.174>, accessed 9 January 2022).
42. Greenwood MJ. Internal migration in developed countries. In: Rosenweig MR, Stark O, editors. *Handbook of population and family economics: volume 1b*. Amsterdam: North Holland; 1997:647–720.

43. Progress on the Sustainable Development Goals: the gender snapshot 2021. New York: UN Women; 2021 (<https://www.unwomen.org/en/digital-library/publications/2021/09/progress-on-the-sustainable-development-goals-the-gender-snapshot-2021>, accessed 26 December 2021).
44. Vargas-Lundius R, Chowdhury A, Yi S, Seshan G, Yameogo ND. Synthesis report: internal migration and urbanization. Washington (DC): KNOMAD, World Bank; 2018 (https://www.knomad.org/sites/default/files/2018-01/Internal%20Migration%20and%20Urbanization_Synthesis%20Report_1.pdf, accessed 9 January 2022).
45. Rajan SI, Bhagat RB. Internal migration in India: integrating migration with development and urbanization policies. Washington (DC): KNOMAD, World Bank; 2021 (Policy Brief 12; <https://www.knomad.org/sites/default/files/2021-02/Policy%20Brief%20-%20Internal%20Migrationand%20Urbanization%20-%20India%20Policy%20Brief%2012%20Feb%202021.pdf>, accessed 9 January 2022).
46. Chan KW. Internal migration in China: integrating migration with urbanization policies and Hukou reform. Washington (DC): KNOMAD, World Bank; 2021 (https://www.knomad.org/sites/default/files/2022-02/Policy%20Brief%2016_Internal%20Migration%20in%20China-Integrating%20Migration%20with%20Urbanization%20Policies%20and%20Hukou%20Reform-Nov_21.pdf, accessed 9 January 2022).
47. GRID 2021: global report on internal displacement. Geneva: Internal Displacement Monitoring Centre; 2021 (<https://www.internal-displacement.org/global-report/grid2021/>, accessed 22 November 2021).
48. Challenges of IDP protection: research study on the protection of internally displaced persons in Afghanistan. Geneva: Internal Displacement Monitoring Centre; 2012 (<https://www.internal-displacement.org/sites/default/files/publications/documents/201211-me-afghanistan-challenges-of-idp-protection-country-en.pdf>, accessed 14 February 2022).
49. Mason JB, White JM, Heron L, Carter J, Wilkinson C, Spiegel P. Child acute malnutrition and mortality in populations affected by displacement in the Horn of Africa, 1997–2009. *Int J Environ Res Public Health*. 2012;9(3):791–806. doi:10.3390/ijerph9030791.
50. Cantor D, Swartz J, Roberts B, Abbara A, Ager A, Bhutta ZA et al. Understanding the health needs of internally displaced persons: a scoping review. *J Migr Health*. 2021;4:100071. doi:10.1016/j.jmh.2021.100071.
51. Internal displacement's impacts on health in Yemen. Geneva: Internal Displacement Monitoring Centre; 2020 (https://www.internal-displacement.org/sites/default/files/publications/documents/IDMC_ImpactsonHealthinYemen.pdf, accessed 29 December 2021).
52. Disability, displacement and climate change. Geneva: Internal Displacement Monitoring Centre; 2021 (https://www.internal-displacement.org/sites/default/files/publications/documents/Disability_Displacement_Climate%20Change.pdf, accessed 29 December 2021).
53. Impacts of displacement: displaced by violence, Jos, Nigeria. Geneva: Internal Displacement Monitoring Centre; 2021 (<https://www.internal-displacement.org/publications/impacts-of-displacement-displaced-by-violence-jos-nigeria>, accessed 9 January 2022).
54. Cazabat C. Durable solutions to displacement must include mental health. In: Internal Displacement Monitoring Centre [website]. Geneva: Internal Displacement Monitoring Centre; 2019 (<https://www.internal-displacement.org/expert-opinion/durable-solutions-to-displacement-must-include-mental-health>, accessed 9 January 2022).
55. Uphoff E, Robertson L, Cabieses B, Villalón FJ, Purgato M, Churchill R et al. An overview of systematic reviews on mental health promotion, prevention, and treatment of common mental disorders for refugees, asylum seekers, and internally displaced persons. *Cochrane Database Syst Rev*. 2020;(9):CD013458. doi:10.1002/14651858.CD013458.pub2.
56. Morina N, Akhtar A, Barth J, Schnyder U. Psychiatric disorders in refugees and internally displaced persons after forced displacement: a systematic review. *Front Psychiatry*. 2018;9:33. doi:10.3389/fpsy.2018.00433.
57. Dhillon P. Expert opinion: 5 key findings on internal displacement and mental health. In: Internal Displacement Monitoring Centre [website]. Geneva: Internal Displacement Monitoring Centre; 2021 (<https://www.internal-displacement.org/expert-opinion/5-key-findings-on-internal-displacement-and-mental-health>, accessed 4 April 2022).
58. Blackmore R, Boyle JA, Fazel M, Ranasinha S, Gray KM, Fitzgerald G et al. The prevalence of mental illness in refugees and asylum seekers: a systematic review and meta-analysis. *PLOS Med*. 2020;17(9):e1003337. doi:10.1371/journal.pmed.1003337.
59. Ochiltree K, Toma IA. Gender analysis of the impact of recent humanitarian crises on women, men, girls, and boys in Puntland State in Somalia. Oxford: Oxfam, KAALO; 2021 (<https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621186/rr-puntland-state-somalia-gender-analysis-290421-en.pdf;jsessionid=7E5380371CE5E96E8BC362CF330C370D?sequence=1>, accessed 21 December 2021).
60. Convention relating to the status of stateless persons. Geneva: United Nations High Commissioner for Refugees; 1954 (<https://www.unhcr.org/protection/statelessness/3bbb25729/convention-relating-status-stateless-persons.html>, accessed 29 December 2021).

61. Statelessness around the world. In: United Nations High Commissioner for Refugees [website]. Geneva: United Nations High Commissioner for Refugees; 2022 (<https://www.unhcr.org/statelessness-around-the-world.html>, accessed 9 January 2022).
62. Albarazi Z, van Waas L. Statelessness and displacement. Oslo: Norwegian Refugee Council; 2016 (<https://www.nrc.no/globalassets/pdf/reports/statelessness-and-displacement.pdf>, accessed 29 December 2021).
63. Statelessness in numbers: 2020. London: Institute on Statelessness and Inclusion; 2020 (https://files.institutesi.org/ISI_statistics_analysis_2020.pdf, accessed 29 December 2021).
64. Van Hout MC, Bigland C, Murray N. Situation assessment of statelessness, health, and COVID-19 in Europe. London: European Network on Statelessness; 2021 (https://www.statelessness.eu/sites/default/files/2021-04/ENS_Health_Situation_Assessment_Europe.pdf, accessed 29 December 2021).
65. Van Waas L, de Chickera A, Spearman O. Stateless in a global pandemic: impact report, 2020. Eindhoven: Institute on Statelessness and Inclusion; 2020 (https://files.institutesi.org/Covid19_Stateless_Impact_Report.pdf, accessed 9 January 2022).
66. Together we can: the COVID-19 impact on stateless people & a roadmap for change. London: Institute on Statelessness and Inclusion; 2021 (https://files.institutesi.org/together_we_can_report_2021.pdf, accessed 29 December 2021).
67. International migrant stock 2020 [online database]. New York: United Nations Department of Economic and Social Affairs, Population Division; 2020 (<https://www.un.org/development/desa/pd/content/international-migrant-stock>, accessed 28 May 2021).
68. Child migration. In: UNICEF data [website]. New York: United Nations Children's Fund; 2021 (<https://data.unicef.org/topic/child-migration-and-displacement/migration/>, accessed 8 January 2022).
69. Defining and measuring circular migration. Geneva: United Nations Economic Commission for Europe; 2016 (ECE/CES/BUR/2016/OCT/18/Add.1; https://unece.org/fileadmin/DAM/stats/documents/ece/ces/bur/2016/October/18Add1-CircularMigration_for_Bureau_final.pdf, accessed 28 March 2022).
70. Mid-year trends. New York: United Nations High Commissioner for Refugees. 2021 (<https://www.unhcr.org/mid-year-trends.html>, accessed 26 December 2021).
71. Flahaux M-L, De Haas H. African migration: trends, patterns, drivers. *Comp Migr Stud.* 2016;4(1):1–25. doi:10.1186/s40878-015-0015-6.
72. Idemudia E, Boehnke K. Patterns and current trends in African migration to Europe. In: *Psychosocial experiences of African migrants in six European countries: a mixed method study.* Cham: Springer; 2020:15–31.
73. World migration report 2022. Geneva: International Organization for Migration; 2021 (<https://publications.iom.int/system/files/pdf/WMR-2022.pdf>, accessed 26 December 2021).
74. Tangcharoensathien V, Thwin AA, Patcharanarumol W. Implementing health insurance for migrants, Thailand. *Bull World Health Organ.* 2017;95(2):146–51. doi:10.2471/BLT.16.179606.
75. Smith JL, Ghimire P, Rijal KR, Maglior A, Hollis S, Andrade-Pacheco R et al. Designing malaria surveillance strategies for mobile and migrant populations in Nepal: a mixed-methods study. *Malar J.* 2019;18(1):158. doi:10.1186/s12936-019-2791-1.
76. International labour migration statistics in South Asia: establishing a subregional database and improving data collection for evidence-based policy-making. Geneva: International Labour Organization; 2018 (https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-new-delhi/documents/publication/wcms_645286.pdf, accessed 7 June 2022).
77. Plewa P. Migration in Maldives: a country profile 2018. Geneva: International Organization for Migration; 2018 (https://publications.iom.int/system/files/pdf/mp_maldives_2018.pdf, accessed 29 December 2021).
78. Kase P. The influence of social demographic factor on individual decision to cross-border migration between Timor Leste and Indonesia. In: Siahaan A, Sihombing T, Shaw R, Jakimow T, Sumintono B, editors. *Proceedings of the International Conference on Public Policy, Social Computing and Development 2017 (ICOPOSDev 2017).* Paris: Atlantis Press; 2017:227–32 (<https://www.atlantispress.com/article/25889843.pdf>, accessed 29 December 2021).
79. Islam MN, Inan TT, Islam AKMN. COVID-19 and the Rohingya refugees in Bangladesh: the challenges and recommendations. *Asia Pac J Public Health.* 2020;32(5):283–4. doi:10.1177/1010539520932707.
80. Fellmeth G, Plugge EH, Nosten S, Oo MM, Fazel M, Charunwatthana P et al. Living with severe perinatal depression: a qualitative study of the experiences of labour migrant and refugee women on the Thai–Myanmar border. *BMC Psychiatry.* 2018;18:229. doi:10.1186/s12888-018-1815-7.
81. Brown TM. Building resilience: the emergence of refugee-led education initiatives in Indonesia to address service gaps faced in protracted transit. *Austrian J South-East Asian Stud.* 2018;11:165–81. doi:10.14764/10.ASEAS-0001.
82. Villa M, editor. *The future of migration to Europe.* Milan: Institute for International Political Studies; 2020 (https://www.ispionline.it/sites/default/files/pubblicazioni/isp_i_futureofmigration_web_1.pdf, accessed 29 December 2021).

83. Dearden K, Sánchez Dionis M. Support needed for families of missing migrants: evidence from IOM's "Assessing the needs of families searching for relatives lost in the central and western Mediterranean" project. Geneva: International Organization for Migration; 2021. (<https://publications.iom.int/system/files/pdf/Support-Needed-for-Missing-Migrants.pdf>, accessed 9 January 2022).
84. The Gulf Cooperation Council (GCC) and health worker migration. Washington (DC): Aspen Institute; 2008 (<https://www.aspeninstitute.org/wp-content/uploads/files/content/images/GCC%20and%20HWM%20Policy%20Brief.pdf>, accessed 9 January 2022).
85. Situation report on international migration 2019: the Global Compact for Safe, Orderly and Regular Migration in the Context of the Arab Region. New York: United Nations Economic and Social Commission for Western Asia; 2020 (https://archive.unescwa.org/sites/www.unescwa.org/files/publications/files/situation-report-international-migration-2019-english_1.pdf, accessed 23 November 2021).
86. Global trends 2019: forced displacement in 2019. Geneva: United Nations High Commissioner for Refugees; 2020 (<https://www.unhcr.org/5ee200e37.pdf>, accessed 23 November 2021).
87. Global trends 2013. Geneva: United Nations High Commissioner for Refugees; 2014 (<https://www.unhcr.org/ph/wp-content/uploads/sites/28/2017/03/GlobalTrends2013.pdf>, accessed 23 November 2021).
88. Health of refugees and migrants: regional situation analysis, practices, experiences, lessons learned and ways forward. Manila: WHO Regional Office for the Western Pacific; 2018 (https://cdn.who.int/media/docs/default-source/documents/publications/health-of-refugees-and-migrants-wpro-2018165be999-c496-4779-9b7d-853111f371f9.pdf?sfvrsn=ab7602b1_1&download=true, accessed 29 December 2021).
89. Asia-Pacific migration report 2020: assessing implementation of the global compact for migration. New Delhi: United Nations Economic and Social Commission for Asia and the Pacific; 2020 (https://www.unescap.org/sites/default/d8files/knowledge-products/AP_Migration_R_2020.pdf, accessed 9 January 2022).
90. Redden K, Safarian J, Schoenborn C, Shortall C, Gagnon AJ. Interventions to support international migrant women's reproductive health in western-receiving countries: a systematic review and meta-analysis. *Health Equity*. 2021;5(1):356–72. doi:10.1089/heap.2020.0115.
91. Shorey S, Ng ED, Downe S. Cultural competence and experiences of maternity health care providers on care for migrant women: a qualitative meta-synthesis. *Birth*. 2021;48(4):458–69. doi:10.1111/birt.12581.
92. Bollini P, Pampallona S, Wanner P, Kupelnick B. Pregnancy outcome of migrant women and integration policy: a systematic review of the international literature. *Soc Sci Med*. 2009;68(3):452–61. doi:10.1016/j.socscimed.2008.10.018.
93. Jeffers K, Tjaden J, Laczko F. A pilot study on disaggregating SDG indicators by migratory status. Geneva: International Organization for Migration; 2018 (https://publications.iom.int/system/files/pdf/a_pilot_study_on_disaggregating_sdg_indicators.pdf, accessed 16 January 2022).
94. Lindert J, von Ehrenstein OS, Priebe S, Mielck A, Brähler E. Depression and anxiety in labor migrants and refugees: a systematic review and meta-analysis. *Soc Sci Med*. 2009;69(2):246–57. doi:10.1016/j.socscimed.2009.04.032.
95. Fazel M, Wheeler J, Danesh J. Prevalence of serious mental disorder in 7000 refugees resettled in western countries: a systematic review. *Lancet*. 2005;365:1309–14. doi:10.1016/S0140-6736(05)61027-6.
96. Public health services survey: inclusion of refugees into national health systems [website]. Geneva: Office of the United Nations High Commissioner for Refugees; 2020 (<https://app.powerbi.com/view?r=eyJrljoiMWQ0OGM4YWEtNzYxZS00MTVlTk4ZTI0Mjk4YzU5NTkwYjhhliwidCI6ImU1YzM3OTgxLTY2NjQ0NDEzNC04YTBjLTY1NDNkMmFmODBiZSIsImMiOj9&pageName=ReportSection>, accessed 28 January 2022).
97. Brandenberger J, Tylleskär T, Sontag K, Peterhans B, Ritz N. A systematic literature review of reported challenges in health care delivery to migrants and refugees in high-income countries: the 3C model. *BMC Public Health*. 2019;19:755. doi:10.1186/s12889-019-7049-x.
98. Kocot E, Szetela A. Assessing health systems' preparedness for providing care for refugees, asylum seekers and migrants: a scoping review. *Eur J Public Health*. 2020;30(6):1157–63. doi:10.1093/eurpub/ckaa135.
99. 2020 annual public health global review. Geneva: United Nations High Commissioner for Refugees; 2021 (<https://www.unhcr.org/60dc89e24.pdf>, accessed 25 November 2021).
100. Alderslade R. A collective WHO European framework for action to support refugees and migrant health. Copenhagen: WHO Regional Office for Europe; 2016 (<https://apps.who.int/iris/handle/10665/325344>, accessed 17 July 2021).
101. Malta: assessing health-system capacity to manage sudden, large influxes of migrants: joint report on a mission of the Ministry for Energy and Health of Malta, the International Centre for Migration, Health and Development and the WHO Regional Office for Europe. Copenhagen: WHO Regional Office for Europe; 2015 (<https://apps.who.int/iris/handle/10665/344402>, accessed 28 March 2022).

102. Serbia: assessing health-system capacity to manage sudden large influxes of migrants: joint report on a mission of the Ministry of Health of Serbia and the WHO Regional Office for Europe with the collaboration of the International Organization for Migration. Copenhagen: WHO Regional Office for Europe; 2015 (<https://apps.who.int/iris/handle/10665/344452>, accessed 25 November 2021).
103. Castañeda H, Holmes SM, Madrigal DS, Young M-ED, Beyeler N, Quesada J. Immigration as a social determinant of health. *Annu Rev Public Health*. 2015;36(1):375–92. doi:10.1146/annurev-publhealth-032013-182419.
104. Galea S, Ettman CK, Zaman M, editors. *Migration and health*. Chicago: University of Chicago Press; 2022.
105. Kennedy S, Kidd MP, McDonald JT, Biddle N. The healthy immigrant effect: patterns and evidence from four countries. *J Int Migr Integr*. 2015–16(2):317–32. doi:10.1007/s12134-014-0340-x.
106. Moullan Y, Jusot F. Why is the "healthy immigrant effect" different between European countries? *Eur J Public Health*. 2014;24(suppl 1):80–6. doi:10.1093/eurpub/cku112.
107. Puschmann P, Donrovich R, Matthijs K. Salmon bias or red herring? Comparing adult mortality risks (ages 30–90) between natives and internal migrants: stayers, returnees and movers in Rotterdam, the Netherlands, 1850–1940. *Hum Nat*. 2017;28(4):481–99. doi:10.1007/s12110-017-9303-1.
108. *Migration health assessments and travel health assistance: 2019 overview of pre-migration health activities*. Geneva: International Organization for Migration; 2020 (<https://publications.iom.int/system/files/pdf/migration-health-assessments.pdf>, accessed 25 November 2021).
109. Juárez SP, Honkaniemi H, Dunlavy AC, Aldridge RW, Barreto ML, Katikireddi SV et al. Effects of non-health-targeted policies on migrant health: a systematic review and meta-analysis. *Lancet Glob Health*. 2019;7(4):e420–35. doi:10.1016/S2214-109X(18)30560-6.
110. Dahlgren G, Whitehead M. *Policies and strategies to promote social equity in health: background document to WHO strategy paper for Europe*. Stockholm: Institute for Futures Studies; 1991 (<https://core.ac.uk/download/pdf/6472456.pdf>, accessed 17 June 2022).
111. McAuliffe M, Khadria B, editors. *World migration report 2020*. Geneva: International Organization for Migration; 2019 (https://publications.iom.int/system/files/pdf/wmr_2020.pdf, accessed 19 January 2022).
112. Parsons AJQ, Gilmour S. An evaluation of fertility- and migration-based policy responses to Japan's ageing population. *PLOS One*. 2018;13(12):e0209285. doi:10.1371/journal.pone.0209285.
113. Fix M, Papademetriou DG, Sumption M, editors. *Immigrants in a changing labor market: responding to economic needs*. Washington (DC): Migration Policy Institute; 2013 (<https://www.migrationpolicy.org/sites/default/files/publications/mpi-immigrantschanginglabormarket-2012-final-webversion.pdf>, accessed 9 January 2022).
114. Vollset SE, Goren E, Yuan C-W, Cao J, Smith AE, Hsiao T et al. Fertility, mortality, migration, and population scenarios for 195 countries and territories from 2017 to 2100: a forecasting analysis for the Global Burden of Disease Study. *Lancet*. 2020 17;396:1285–306. doi:10.1016/S0140-6736(20)30677-2.
115. Gushulak BD, MacPherson DW. The basic principles of migration health: population mobility and gaps in disease prevalence. *Emerg Themes Epidemiol*. 2006;3:3. doi:10.1186/1742-7622-3-3.
116. Helgesson M, Johansson B, Nordquist T, Vingård E, Svartengren M. Healthy migrant effect in the Swedish context: a register-based, longitudinal cohort study. *BMJ Open*. 2019;9(3):e026972. doi:10.1136/bmjopen-2018-026972.
117. Vang Z, Sigouin J, Flenon A, Gagnon A. The healthy immigrant effect in Canada: a systematic review. In: *Population change and lifecourse strategic knowledge cluster discussion paper series*. Hamilton (ON): Canadian Research Data Centre Network; 2015 (<https://ir.lib.uwo.ca/cgi/viewcontent.cgi?article=1012&context=pcl>, accessed 9 January 2022).
118. Ikram UZ, Malmusi D, Juel K, Rey G, Kunst AE. Association between integration policies and immigrants' mortality: an explorative study across three European countries. *PLOS One*. 2015;10(6):e0129916. doi:10.1371/journal.pone.0129916.
119. Kaplan GA. What's wrong with social epidemiology, and how can we make it better? *Epidemiol Rev*. 2004;26:124–35. doi:10.1093/epirev/mxh010.
120. Kuruvilla S, Sadana R, Montesinos EV, Beard J, Vasdeki JF, Araujo de Carvalho I et al. A life-course approach to health: synergy with sustainable development goals. *Bull World Health Organ*. 2018;96(1):42–50. doi:10.2471/BLT.17.198358.
121. Spallek J, Zeeb H, Razum O. What do we have to know from migrants' past exposures to understand their health status? A life course approach. *Emerg Themes Epidemiol*. 2011;8:6. doi:10.1186/1742-7622-8-6.
122. Gong F, Xu J, Fujishiro K, Takeuchi DT. A life course perspective on migration and mental health among Asian immigrants: the role of human agency. *Soc Sci Med*. 2011;73(11):1618–26. doi:10.1016/j.socscimed.2011.09.014.
123. Montes de Oca V, García TR, Sáenz R, Guillén J. The linkage of life course, migration, health, and aging: health in adults and elderly Mexican migrants. *J Aging Health*. 2011;23(7):1116–40. doi:10.1177/0898264311422099.
124. *Migration and vulnerability: migration and health*. Geneva: International Organization for Migration; (<http://migrationdataportal.org/themes/migration-and-health>, accessed 28 May 2021).

125. World urbanization prospects 2018. In: United Nations Department of Economic and Social Affairs; 2021 (<https://population.un.org/wup/>, accessed 17 July 2021).
126. Lerch M. International migration and city growth in the Global South: an analysis of IPUMS data for seven countries, 1992–2013. *Popul Dev Rev.* 2020;46(3):557–82. doi:10.1111/padr.12344.
127. Adger WN, Crépin AS, Folke C, Ospina D, Chapin III FS, Segerson K et al. Urbanization, migration, and adaptation to climate change. *One Earth.* 2020;3(4):396–9. doi:10.1016/j.oneear.2020.09.016.
128. Fuller B, Romer P. Urbanization as opportunity. Washington (DC) World Bank; 2014 (<https://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-6874>, accessed 17 June 2022).
129. Kuddus MA, Tynan E, McBryde E. Urbanization: a problem for the rich and the poor? *Public Health Rev.* 2020;41:1. doi:10.1186/s40985-019-0116-0.
130. Integrating migration into urban development programmes: a toolkit. Geneva: International Organization for Migration; 2021 (<https://unhabitat.org/sites/default/files/2022/02/urban-development-migration-toolkit.pdf>, accessed 25 November 2021).
131. Azcona G, Bhatt A, Ndugwa R. COVID-19 exposes the harsh realities of gender inequality in slums. New York: UN Women; 2020 (<https://data.unwomen.org/features/covid-19-exposes-harsh-realities-gender-inequality-slums>, accessed 27 December 2021).
132. Sampson L, Ettman CK, Galea S. Urbanization, urbanicity, and depression: a review of the recent global literature. *Curr Opin Psychiatry.* 2020;33(3):233–44. doi:10.1097/YCO.0000000000000588.
133. The world health report 2006: working together for health. Geneva: World Health Organization; 2006 (<https://apps.who.int/iris/handle/10665/43432>, accessed 9 January 2022).
134. Cabieses B, Tunstall H. Immigrant health workers in Chile: is there a Latin American 'brain drain'? *Rev Panam Salud Publica.* 2012;32(2):161–7. doi:10.1590/s1020-49892012000800012.
135. Dohlman L, DiMeglio M, Hajj J, Laudanski K. Global brain drain: how can the Maslow theory of motivation improve our understanding of physician migration? *Int J Environ Res Public Health.* 2019;16(7):E1182. doi:10.3390/ijerph16071182.
136. Garner SL, Conroy SF, Bader SG. Nurse migration from India: a literature review. *Int J Nurs Stud.* 2015;52(12):1879–90. doi:10.1016/j.ijnurstu.2015.07.003.
137. Bradby H. International medical migration: a critical conceptual review of the global movements of doctors and nurses. *Health (London).* 2014;18(6):580–96. doi:10.1177/1363459314524803.
138. Hagan JM, Wassink J. New skills, new jobs: return migration, skill transfers, and business formation in Mexico. *Soc Probl.* 2016;63(4):513–33. doi:10.1093/socpro/spw021.
139. Ratha D, Kim EJ, Plaza S, Seshan G, Riordan EJ, Chandra V. Recovery: COVID-19 crisis through a migration lens. Washington (DC): KNOMAD, World Bank; 2021 (Migration and Development Brief 35; https://www.knomad.org/sites/default/files/2021-11/Migration_Brief%2035_1.pdf, accessed 23 December 2021).
140. Ratha D, Kim EJ, Plaza S, Seshan G. Resilience: COVID-19 crisis through a migration lens. Washington (DC): KNOMAD, World Bank; 2021 (Migration and Development Brief 34; https://www.knomad.org/sites/default/files/2021-05/Migration%20and%20Development%20Brief%2034_1.pdf, accessed 29 March 2022).
141. Health of families left behind. Geneva: International Organization for Migration; 2018 (<https://www.iom.int/health-families-left-behind>, accessed 18 July 2021).
142. Schröder-Butterfill E. Emigration and the care of older people "left behind": the changing role of neighbourhood networks, ethnicity and civil society. *J Ethn Migr Stud.* 2021;2021:1–19. doi:10.1080/1369183X.2021.2009783.
143. Older people in situations of migration in Africa: the untold migration story. London: HelpAge International; 2017 (Policy paper; <https://reliefweb.int/sites/reliefweb.int/files/resources/older-persons-and-migration-policy-briefing-paper-22-feb-2017.pdf>, accessed 4 April 2022).
144. Women on the move: migration, care work and health. Geneva: World Health Organization; 2017 (<https://apps.who.int/iris/handle/10665/259463>, accessed 4 April 2022).
145. Wickramage K, Siriwardhana C, Peiris S. Promoting the health of left-behind children of Asian labour migrants: evidence for policy and action. Geneva: International Organization for Migration, Washington (DC): Migration Policy Institute; 2015 (https://www.migrationpolicy.org/sites/default/files/publications/MPI%20Issue%20No%2014_10Sep2015_FINALweb.pdf, accessed 9 January 2022).
146. Fellmeth G, Rose-Clarke K, Zhao C, Busert LK, Zheng Y, Massazza A et al. Health impacts of parental migration on left-behind children and adolescents: a systematic review and meta-analysis. *Lancet.* 2018;392:2567–82. doi:10.1016/S0140-6736(18)32558-3.
147. Children "left behind". New York: United Nations Children's Fund; 2019 (UNICEF Working Paper; <https://www.unicef.org/media/83581/file/Children-Left-Behind.pdf>, accessed 27 December 2021).
148. Suleman S, Garber KD, Rutkow L. Xenophobia as a determinant of health: an integrative review. *J Public Health Policy.* 2018;39(4):407–23. doi:10.1057/s41271-018-0140-1.

149. Grove NJ, Zwi AB. Our health and theirs: forced migration, othering, and public health. *Soc Sci Med.* 2006;62(8):1931–42. doi:10.1016/j.socscimed.2005.08.061.
150. Agudelo-Suárez AA, Ronda-Pérez E, Gil-González D, Vives-Cases C, García AM, Ruiz-Frutos C et al. The effect of perceived discrimination on the health of immigrant workers in Spain. *BMC Public Health.* 2011;11:652. doi:10.1186/1471-2458-11-652.
151. Hall BJ, Pangan CAC, Chan EWW, Huang RL. The effect of discrimination on depression and anxiety symptoms and the buffering role of social capital among female domestic workers in Macao, China. *Psychiatry Res.* 2019;271:200–7. doi:10.1016/j.psychres.2018.11.050.
152. Drewniak D, Kronen T, Wild V. Do attitudes and behavior of health care professionals exacerbate health care disparities among immigrant and ethnic minority groups? An integrative literature review. *Int J Nurs Stud.* 2017;70:89–98. doi:10.1016/j.ijnurstu.2017.02.015.
153. Protocol against the smuggling of migrants by land, sea and air, supplementing the United Nations Convention against transnational organized crime. Geneva: United Nations High Commissioner for Refugees; 2000 (<https://www.unhcr.org/protection/migration/496323791b/protocol-against-smuggling-migrants-land-sea-air-supplementing-united-nations.html>, accessed 27 December 2021).
154. Protocol to prevent, suppress and punish trafficking in persons, especially women and children, supplementing the United Nations Convention against transnational organized crime. New York: United Nations; 2000 (<https://www.ohchr.org/sites/default/files/Documents/ProfessionalInterest/ProtocolonTrafficking.pdf>, accessed 27 December 2021).
155. Human rights of migrants: note by the Secretary-General. In: Seventy-sixth session, United Nations General Assembly, promotion and protection of human rights, 30 July 2021. New York: United Nations; 2021 (A/76/257; <https://daccess-ods.un.org/access.nsf/Get?OpenAgent&DS=A/76/257&Lang=E>, accessed 29 December 2021).
156. González Morales F. Report on means to address the human rights impact of pushbacks of migrants on land and at sea: report of the Special Rapporteur on the human rights of migrants. New York: United Nations Human Rights Council; 2021 (A/HRC/47/30; <https://reliefweb.int/report/world/report-means-address-human-rights-impact-pushbacks-migrants-land-and-sea-report-special>, accessed 29 December 2021).
157. The 10-point plan in action, 2016 update. Geneva: United Nations High Commissioner for Refugees; 2016 (<https://www.refworld.org/10pointplaninaction2016update.html>, accessed 23 November 2021).
158. Key findings on the characteristics of migrant smuggling in west Africa, north Africa and the central Mediterranean. Vienna: United Nations Office on Drugs and Crime, Observatory on Smuggling of Migrants; 2021 (https://www.unodc.org/res/som/docs/Observatory_Storymap_1_Final_2021.05.19.pdf, accessed 29 December 2021).
159. Abused and neglected: a gender perspective on aggravated migrant smuggling offences and response. Vienna: United Nations Office on Drugs and Crime; 2021 (https://www.unodc.org/documents/human-trafficking/2021/Aggravated_SOM_and_Gender.pdf, accessed 29 December 2021).
160. Rigaud KK, de Sherbinin A, Jones B, Bergmann J, Clement V, Ober K et al. Groundswell: preparing for internal climate migration. Washington (DC): World Bank; 2018 (<https://openknowledge.worldbank.org/handle/10986/29461>, accessed 29 December 2021).
161. Clement V, Rigaud KK, de Sherbinin A, Jones B, Adamo S, Schewe J et al. Groundswell part 2: acting on internal climate migration. Washington (DC): World Bank; 2021 (<https://openknowledge.worldbank.org/handle/10986/36248>, accessed 29 December 2021).
162. Callaghan M, Schleussner C-F, Nath S, Lejeune Q, Knutson TR, Reichstein M et al. Machine-learning-based evidence and attribution mapping of 100 000 climate impact studies. *Nat Clim Chang.* 2021;11(11):966–72. doi:10.1038/s41558-021-01168-6.
163. Opitz-Stapleton S, Lovell E, Cao Y, Dupar M, Peters K. Climate change, conflict and fragility: an evidence review and recommendations for research and action. London: Overseas Development Institute; 2020 (https://cdn.odi.org/media/documents/odi_climate_change_conflict_and_fragility.pdf, accessed 28 December 2021).
164. Butler CD. Climate change and global health. Boston (MA): CABI; 2014.
165. Migration and global environmental change: future challenges and opportunities. London: United Kingdom Government Office for Science; 2011 (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/287717/11-1116-migration-and-global-environmental-change.pdf, accessed 9 January 2022).
166. IOM outlook on migration, environment and climate change. Geneva: International Organization for Migration; 2014 (https://publications.iom.int/system/files/pdf/mecc_outlook.pdf, accessed 29 December 2021).
167. Internal displacement in the context of the slow-onset adverse effects of climate change: submission by the International Organization for Migration to the Special Rapporteur on the Human Rights of Internally Displaced Persons. Geneva: International Organization for Migration; 2020 (<https://publications.iom.int/system/files/pdf/idp-climate-change.pdf>, accessed 29 December 2021).

168. Triggs GD, Wall PCJ. "The makings of a success": the Global Compact on Refugees and the inaugural Global Refugee Forum. *Int J Refug Law*. 2020;32(2):283–339. doi:10.1093/ijrl/eeaa024.
169. Crawford N, O'Callaghan S. *The Comprehensive Refugee Response Framework: responsibility-sharing and self-reliance in East Africa*. London: Overseas Development Institute; 2019 (<https://cdn.odi.org/media/documents/12935.pdf>, accessed 29 December 2021).
170. New York declaration for refugees and migrants. In: Seventy-first session, United Nations General Assembly, New York, 19 September 2016. New York: United Nations; 2016 (Resolution A/71/L.1; https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_71_1.pdf, accessed 16 June 2022).
171. Data, social determinants, and better decision-making for health: the report of the 3-D Commission. Boston: 3-D Commission; 2021 (https://static1.squarespace.com/static/5e2ca08b9fdf240fb1abb55b/t/617aae3927d4790b590aef4e/1635429947691/3DCommission_Report_SDoH_Oct+12_final.pdf, accessed 9 January 2022).
172. Klomp J, de Haan J. Is the political system really related to health? *Soc Sci Med*. 2009;69(1):36–46. doi:10.1016/j.socscimed.2009.03.033.
173. Kirigia JM, Kirigia DG. The essence of governance in health development. *Int Arch Med*. 2011;4:11. doi:10.1186/1755-7682-4-11.
174. *World health statistics 2019: monitoring health for the SDGs, sustainable development goals*. Geneva: World Health Organization; 2019 (<https://apps.who.int/iris/handle/10665/324835>, accessed 9 January 2022).
175. *Global compact on refugees*. New York: United Nations; 2018 (<https://www.unhcr.org/5c658aed4.pdf>, accessed 4 October 2021).
176. *Global compact for safe, orderly and regular migration*. In: Seventy-third session, United Nations General Assembly, New York, 11 January 2019. New York: United Nations; 2019 (A/RES/73/195; https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_73_195.pdf, accessed 6 August 2021).
177. Resolution WHA61.17: health of migrants. In: Sixty-first World Health Assembly, Geneva, 19–24 May 2008. Geneva: World Health Organization; 2008:23–25 (WHA61/2008/REC/1; https://apps.who.int/gb/ebwha/pdf_files/WHA61-REC1/A61_REC1-en.pdf, accessed 17 November 2021).
178. *Health of migrants: the way forward*. Report of a global consultation, Madrid, Spain, 3–5 March 2010. Geneva: World Health Organization; 2011 (<https://apps.who.int/iris/handle/10665/44336>, accessed 9 January 2022).
179. *Health of migrants: resetting the agenda*. Report of the 2nd Global Consultation: Colombo, Sri Lanka, 21–23 February 2017. Geneva: International Organization for Migration; 2017 (https://publications.iom.int/system/files/pdf/gc2_srilanka_report_2017.pdf, accessed 9 January 2022).
180. *Transforming our world: the 2030 Agenda for Sustainable Development*. New York: United Nations; 2015 (<https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>, accessed 9 January 2022).
181. *Political declaration of the high-level meeting on universal health coverage*. New York: United Nations; 2019 (<https://www.un.org/pga/73/wp-content/uploads/sites/53/2019/07/FINAL-draft-UHC-Political-Declaration.pdf>, accessed 7 June 2022).
182. *International Health Regulations (2005)*, third edition. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/246107>, accessed 26 April 2022).
183. *World Health Assembly second special session*. Geneva: World Health Organization; 2021 (https://apps.who.int/gb/ebwha/pdf_files/WHASS2-REC1/WHASS2_REC1-en.pdf, accessed 7 June 2022).
184. Wickramage K, Annunziata G. Advancing health in migration governance, and migration in health governance. *Lancet*. 2018;392:2528–30. doi:10.1016/S0140-6736(18)32855-1.
185. *Global plan to end TB 2018–2022: the paradigm shift*. Geneva: Stop TB Partnership; 2019 (https://www.stoptb.org/sites/default/files/GPR_2018-2022_Digital.pdf, accessed 21 January 2022).
186. *Implementing the End TB strategy: the essentials*. Geneva: World Health Organization; 2015 (<https://apps.who.int/iris/handle/10665/206499>, accessed 9 January 2022).
187. *Key learning on Health in All Policies implementation from around the world*. Geneva: World Health Organization; 2018 (<https://apps.who.int/iris/handle/10665/272711>, accessed 7 June 2022).
188. *African Union launches a new program on migration and health*. Addis Ababa: African Union; 2020 (<https://au.int/en/pressreleases/20200723/african-union-launches-new-program-migration-and-health>, accessed 29 December 2021).
189. *What we do? Origins of the Quito process*. Panama City: Proceso de Quito; 2021 (<https://www.procesodequito.org/en/what-we-do>, accessed 29 December 2021).
190. *International technical meeting on human mobility of Venezuelan citizens in the region (Quito process)*. International Organization for Migration; 2022 (<https://www.iom.int/international-technical-meeting-human-mobility-venezuelan-citizens-region-quito-process>, accessed 25 March 2022).

191. Regional consultative process on overseas employment and contractual labor for countries of origin in Asia (Colombo Process). Geneva: International Organization for Migration; 2021 (<https://www.iom.int/regional-consultative-process-overseas-employment-and-contractual-labor-countries-origin-asia-colombo-process>, accessed 30 December 2021).
192. Migrants' health. Brussels: European Commission; 2016 (https://ec.europa.eu/health/social-determinants/migrants-health_en, accessed 29 December 2021).
193. Collection and integration of data on refugee and migrant health in the WHO European Region: technical guidance. Copenhagen: WHO Regional Office for Europe; 2020 (<https://apps.who.int/iris/handle/10665/337694>, accessed 12 November 2020).
194. Abdalla FM, Omar MA, Badr EE. Contribution of Sudanese medical diaspora to the healthcare delivery system in Sudan: exploring options and barriers. *Hum Resour Health*. 2016;14(suppl 1):28. doi:10.1186/s12960-016-0123-x.
195. Taslakian EN, Garber K, Shekherdian S. Diaspora engagement: a scoping review of diaspora involvement with strengthening health systems of their origin country. *Glob Health Action*. 2022;15(1):2009165. doi:10.1080/16549716.2021.2009165.
196. Towards 2035. Strategic foresight: making migration and integration policies future ready. Paris: Organisation for Economic Co-operation and Development; 2020 (<https://www.oecd.org/migration/mig/migration-strategic-foresight.pdf>, accessed 22 January 2022).
197. Healthcare in Peru: "COVID-19 highlighted a great need to expand capacities". Geneva: United Nations High Commissioner for Refugees, Global Compact on Refugees; 2020 (<https://globalcompactrefugees.org/article/healthcare-peru-covid-19-highlighted-great-need-expand-capacities>, accessed 29 December 2021).
198. Raposo VL, Violante T. Access to health care by migrants with precarious status during a health crisis: some insights from Portugal. *Hum Rights Rev*. 2021;22(4):459–82. doi:10.1007/s12142-021-00621-5.
199. Tackling transmissions in migrant worker clusters [website]. Singapore: Government of Singapore; 2020 (<http://www.gov.sg/article/tackling-transmissions-in-migrant-worker-clusters>, accessed 29 December 2021).
200. Information on coronavirus (COVID-19) for non-UK nationals. London: Greater London Authority; 2021 (<https://www.london.gov.uk/what-we-do/communities/european-londoners-hub/information-coronavirus-covid-19-non-uk-nationals>, accessed 29 December 2021).
201. International migration, health and human rights. Geneva: World Health Organization; 2003 (<https://apps.who.int/iris/handle/10665/42793>, accessed 9 January 2022).
202. Wickramage K, Gostin LO, Friedman E, Prakongsai P, Suphanchaimat R, Hui C et al. Missing: where are the migrants in pandemic influenza preparedness plans? *Health Hum Rights*. 2018;20(1):251–8. PMID: PMC6039731.
203. Seventieth Regional Committee for Europe: virtual session, 14–15 September 2020: progress report on implementation of the Strategy and Action Plan for Refugee and Migrant Health in the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2021 (EUR/RC70/8(K); <https://apps.who.int/iris/handle/10665/333536>, accessed 23 November 2021).
204. Resolution WHA71.1. Thirteenth General Programme of Work, 2019–2023. In: Seventy-first World Health Assembly, Geneva, 21–26 May 2018. Resolutions and decisions, annexes. Geneva: World Health Organization; 2018:3 (A75/8; <https://apps.who.int/iris/handle/10665/326571>, accessed 16 June 2022).
205. Programme budget 2022–2023: revision. Extending the Thirteenth General Programme of Work, 2019–2023 to 2025. In: Seventy-fifth World Health Assembly, Geneva, 22–28 May 2022. Geneva: World Health Organization; 2018:3 (WHA71/2018/REC/1; https://apps.who.int/gb/ebwha/pdf_files/WHA75/A75_8-en.pdf, accessed 16 June 2022).
206. Health of migrants: report by the Secretariat. In: Sixty-first World Health Assembly, Geneva, 19–24 May 2008. Geneva: World Health Organization; 2008 (A61/12; https://apps.who.int/iris/bitstream/handle/10665/23467/A61_12-en.pdf;sequence=1, accessed 10 May 2022).
207. Promoting the health of refugees and migrants. In: Seventieth World Health Assembly, Geneva, 22–31 May 2017. Geneva: World Health Organization; 2017 (WHA70.15; <https://apps.who.int/iris/handle/10665/275698>, accessed 7 June 2022).
208. Global action plan on promoting the health of refugees and migrants, 2019–2023. In: Seventy-second World Health Assembly, Geneva, 20–28 May 2019. Resolutions and decisions, annexes. Geneva: World Health Organization; 2019: Annex 5 (WHA72/2019/REC/1; https://apps.who.int/gb/ebwha/pdf_files/WHA72-REC1/A72_2019_REC1-en.pdf, accessed 17 June 2022).
209. Promoting the health of refugees and migrants. In: Seventy-second World Health Assembly, Geneva, 20–28 May 2019. Geneva: World Health Organization; 2019: 53 (WHA72(14); <https://apps.who.int/iris/handle/10665/328432>, accessed 17 June 2022).

CHAPTER 2

Determinants of refugee and migrant health



A Syrian interpreter working at a polyclinic for refugees and migrants in Eskişehir, Türkiye. Refugees and migrants may have difficulty navigating the health care system and communicating. Interpreters help to bridge such barriers. © WHO

2.1 Introduction

This chapter explores the determinants that emerged from a review of the literature on the health of refugees and migrants within the six WHO regions. Determinants of health include a variety of individual, social and environmental factors that can cause poorer health outcomes among refugees and migrants compared with host populations. The determinants are highly interconnected and often interdependent. Many researchers consider the displacement and migration process to be a determinant in itself (1–3).

Refugees and migrants are affected by the same determinants that affect the rest of humanity. However, their migratory status can add a layer of complexity that, when combined with other determinants, makes them particularly vulnerable to specific health risks, thereby affecting their overall health. These determinants are broadly grouped as:

- individual characteristics and behaviours – genetics, gender and personal behaviour and age;
- social and economic environment (Box 2.1) – education, health literacy, income and social status, employment and working conditions, social support networks, culture, and health services (4); and
- physical environment – safe water and clean air, healthy workplaces, safe houses, communities and roads, and food and nutrition.

The determinants described in this chapter affect refugees and migrants differently at various stages of their displacement and migration. For example, issues such as water, sanitation, housing and food tend to be of greatest concern during the migration process, that is, as refugees and migrants make their journeys or first arrive at their destinations. Other determinants, such as income and level of education, may assume greater importance as resettlement progresses; equally, these determinants may influence a person's decision to move in the first place. Sex and gender have cross-cutting impacts throughout migration as in all other areas of life, while migratory status may evolve during the process.

Box 2.1. Social determinants of health

The social determinants of health are nonmedical factors that influence health outcomes, in both positive and negative ways, by shaping daily life. Social determinants disproportionately affect populations that are most vulnerable. When exploring the health of refugees and migrants, it is the social determinants of health (rather than diseases or medical conditions themselves) that explain most of their poor health outcomes.

Key social determinants include income and social protection, level of education, unemployment and job insecurity, working conditions, food insecurity, housing and basic amenities, early childhood development, social inclusion and non-discrimination, conflict, and access to affordable health services of good quality.

Recognizing their importance, the World Health Assembly adopted resolutions on social determinants of health in 2009 and again in 2012 following the World Conference on Social Determinants of Health in Rio de Janeiro.

Since early 2020, however, the social and health inequalities exposed by the COVID-19 pandemic have led to renewed interest by Member States in WHO's work on the social determinants of health. In 2021, the World Health Assembly passed resolution WHA74.16, highlighting the need to strengthen efforts to address the social determinants of health, calling such efforts "an integral part of the national, regional and international response to the health and socioeconomic crises generated by the current pandemic and to future public health emergencies" (4).



In the Colombian municipality of Arauquita local authorities and humanitarian partners set up shelters and provided aid to people who had recently arrived from the Bolivarian Republic of Venezuela. © WHO / PAHO / Karen Gonzalez

2.2 Sex and gender

- Sex- and gender-defined roles, norms and behaviour shape many of the challenges that refugees and migrants of all ages are exposed to, ranging from physical, sexual and emotional violence in the household to specific sectors of employment.
- Sex and gender influence access to health services and how these services respond to the particular needs of refugees and migrants across the life course.
- Women and girls face unique challenges and vulnerabilities, such as unique privacy and security challenges in accessing water, sanitation and hygiene (WASH) services and facilities, including for menstrual hygiene management.
- The vulnerability of men and boys to physical and sexual violence, and their need for care and support, is underrecognized.
- Lesbian, gay, bisexual, transgender, queer and intersex (LGBTQI+) refugees and migrants typically lack social support, face discrimination and experience unique challenges with local health services. Mental health burdens are high among this population.

The roles, norms and behaviour associated with sex and gender have an influence on how people – women, men, girls, boys and people with diverse gender identities – access health services and how health systems respond to their particular needs. Research clearly shows that sex inequality contributes to heightened health risks for women and girls globally. At the same time, examining health issues in terms of sex and gender helps to determine how

unbalanced power relations between men and women affect the risks, health-seeking behaviour and health outcomes of men and women in different age and social groups (5–7).

Sex and gender greatly influence displacement and migration. To take only one example, many women who are displaced or choose to migrate do so in their prime childbearing years. Their health needs in any given situation may be very different from those of men, requiring additional medical services for prenatal, labour and delivery, and postpartum care (8,9). Violence and security are other issues that frequently affect women and men very differently, along with safe access to public spaces and facilities. LGBTQI+ minorities face a multitude of challenges, ranging from social stigma to provider discrimination and barriers to accessing health care. Men are also affected differently in a disaster context. Although limited, the evidence indicates that migrant men felt disempowered because they could not provide for their families as they used to in their home country, or were perceived as causing unrest in their host countries (10,11).

2.2.1 Health of women and girls

Sex and gender is often an important determinant of noncommunicable diseases (NCDs). In the WHO European Region, the length of stay in host countries was observed to have an impact on the development of overweight/obese conditions and to affect female refugees and migrants, particularly those from Africa. This may have been the result of cultural attitudes around physical activity and women's physical appearance (12,13). Syrian refugee women in Türkiye had significantly higher levels of overweight/obesity than men, although levels increased with age among both men and women (14). Sex also affected the prevalence of diabetes mellitus and cardiovascular disease (CVD). Some of these health outcomes can be attributed to factors such as a lack

of female-only settings in which to perform physical activities, a lack of knowledge and limited exercise skills, as shown from research in Australia (15,16). In addition, a survey-based study among children from occupied Palestinian territory, including east Jerusalem, found that girls reported restricted access to public spaces compared with boys and feelings of insecurity when outdoors, which limited their activities (17). In Thailand, a survey of migrant workers also found that being female was associated with a lack of exercise, highlighting the need for inclusive and culturally appropriate health promotion strategies (18). Sexual and genderbased violence (SGBV) against women is a factor that can increase vulnerability to suicide and self-harm, as demonstrated among Rohingya refugee women in Bangladesh (19,20). In several regions, female refugees and migrants faced high levels of SGBV, which is linked to trauma and poor mental health outcomes (21–24). In addition, practices such as female genital mutilation (FGM) and early marriage can drive girls to migrate in order to seek safer conditions in other places (25).

In the Republic of Korea, women migrating for marriage experience poorer health outcomes and multilevel social challenges, including acculturative stress, depression and

poorer oral health, compared with their host counterparts (26–28). Transnational marriages often demand that women quickly take on new roles in unfamiliar settings, which raises stress levels and the risk of mental health issues.

Across various employment sectors there is often a sex disparity that results in different injury rates between men and women. Many jobs in high-risk sectors, such as construction, are heavily dominated by men (29–31). International employment schemes also exhibit a sex imbalance, as evidenced by Australia's Seasonal Worker Program and New Zealand's Recognized Seasonal Employer scheme. Both have low female participation rates (17% and 10%, respectively), leading to an overrepresentation of accident-related injuries among men (30). In the household service sector, where predominantly women are employed as migrant domestic workers, female workers are subsequently at higher risk for musculoskeletal disorders, abusive practices and poor mental health (32–34).

2.2.2 Health of men and boys

Refugee and migrant men face their own challenges along the migration journey. Because men are not traditionally recognized as a vulnerable subgroup in the same way as women or children, the needs of men may be overlooked or neglected along the migration journey, particularly those relating to the provision of health services (35).

Evidence indicates that refugee and migrant men experience physical violence, including torture, beatings and imprisonment, during different phases of migration, sometimes more than women (36–40). Such experiences result in a high burden of post-traumatic physical and psychological morbidity, as well as a poorer quality of life and social isolation.

Cases of sexual violence among refugee and migrant boys and men are often underreported as a result of social and cultural stigma and the belief that men cannot be raped.

Notably, regional differences occur regarding the type of physical violence experienced by refugee and migrant men. Men transiting through the countries of the WHO African Region and WHO Eastern Mediterranean Region frequently report imprisonment and torture, often as a result of political violence or driven by state actors. Studies have included refugees from and transiting through several countries from the African continent bound for Europe (40–42). In contrast, extortion and theft were the most common forms of physical violence experienced by migrant men during transit through Central American countries to the United States (43). A study found that male migrants in transit through a Central American country where they were not nationals experienced a greater burden of violence compared with their female counterparts, although no significant difference was found between male and female migrants who were nationals of that same country (43). This disparity may be a result of irregular migrant conditions and limited social support. High levels of violence were also reported by transsexual, transgender and transvestite individuals.

Cases of sexual violence among refugee and migrant boys and men are often underreported as a result of social and cultural stigma and the belief that men cannot be raped (41,44,45). Evidence from male survivors of sexual violence in three refugee-hosting countries (Bangladesh, Italy and Kenya) identified key barriers and deterrents faced in seeking services after experiencing sexual violence (45). Many met negative attitudes in health care providers and staff, such as disbelief and lack of empathy, and were subjected to humiliating comments from service providers with xenophobic and homophobic misconceptions of male-on-male sexual violence. In a clinic providing medical care to asylum seekers in

a country in the WHO European Region, 28% of sexual assault survivors were men; a high proportion of these men indicated that their attack occurred during the migration period rather than in their country of origin (46). A study in one country of refugee survivors of SGBV and torture, including rape, found that none of the men sought treatment or officially reported their injuries (40).

Refugee and migrant men in a few high-income countries in the WHO Region of the Americas reported feeling pressure to fulfil typical masculine social roles, such as sending remittances back home, and to assert their masculinity by establishing themselves as breadwinners (47,48). Being unable to do so, whether because of unemployment or other barriers, was linked to high levels of stress, emotional and behavioural problems, and feelings of inadequacy, leading to a state of "depleted masculinity" (48). In the case of male migrants from Bangladesh and Pakistan working in Greece, such feelings of emasculation have driven many to rework their masculine status into self-exploitative contests (e.g. fruit-picking competitions) that serve the employers' interests while undermining worker solidarity (49).

2.2.3 LGBTQI+ populations and sexual minorities

LGBTQI+ refugees and migrants face particular risks and vulnerabilities as a result of their sexual orientation, gender identity, gender expression and sex characteristics, similar to LGBTQI+ people among the host population (50). However, migratory status adds an additional layer of complexity. Evidence from the WHO African Region shows that these groups often lack social support, face stigma and discrimination, and experience limited access to and poor treatment from local health services, and these challenges may be compounded by their migratory and/or

HIV status (51–53). Stigma presents a major barrier to HIV prevention and care, particularly for men who have sex with men (MSM). In a country from the WHO Region of the Americas, HIV-related stigma was among the most frequently reported barriers to consistent attendance at HIV clinics (54); in Europe, structural stigma towards sexual minorities and immigrants has been associated with a lack of knowledge about HIV prevention and service coverage (55). In a study carried out in another high-income country, 40% of MSM from several migrant originated countries indicated that their reason for migration was to affirm their sexual orientation. The study found that migration to avoid persecution because of being gay was associated with an increased risk of HIV infection after arrival in that country, whereas migrating to lead a gay life was not (56).

LGBTQI+ refugees and migrants reported a variety of mental health burdens, including mental distress, suicidal ideation and traumatic stress, with some indicating that their mental well-being during the post-migration period was either unimproved or worsened compared with their pre-migration well-being (57–60). In a study among LGBTQI+ people seeking

LGBTQI+ refugees and migrants reported a variety of mental health burdens, including mental distress, suicidal ideation and traumatic stress, with some indicating that their mental well-being during the post-migration period was either unimproved or worsened compared with their pre-migration well-being.

refugee status in another country from the WHO Region of the Americas, some reported suffering negative psychological impacts while completing the refugee claims process. Reasons for this included re-traumatization while recounting experiences of violence and persecution, compressed service timelines leading to mental health and identity crises, and the additional burden of proving that they are members of a sexual or gender minority as part of the process (61).

In a qualitative study exploring integration experiences, Muslim LGBTQI+ refugees living in high-income countries reported challenges resulting from their intersecting identities; refugees can suffer homophobia, transphobia and discrimination from other refugees while simultaneously experiencing anti-migrant sentiments and/or Islamophobia from host communities (62). Harassment and threats of violence can also discourage LGBTQI+ refugees from seeking the social services and benefits that they are entitled to. The literature indicates that culturally tailored social support groups, participation in civil society and building trust with health care providers who recognize their needs for social support may all help to moderate the effects of the various stressors experienced by LGBTQI+ refugees and migrants (63–65).

Displaced MSM and transgender women interviewed in a cross-sectional study presented higher levels of psychiatric comorbidities compared with their counterparts in the host population as a result of experiencing both displacement- and stigma-related stressors (66). To successfully implement HIV prevention and testing programmes, health care providers must have high levels of comfort with LGBTQI+ issues and also consider how MSM view their sexual behaviour and relationships (67–69). Further research is needed on sexual and



Rohingya women and girls using the water facility beside a women's hygiene centre in Cox's Bazar, Bangladesh. The facility was designed for refugee women by refugee women. © UNHCR / Hasib Zuberi

gender minorities such as transgender refugees and migrants. Transgender asylum seekers in a high-income country recounted experiencing pervasive violence from family members, police and their communities, which led to persistent mental health problems (70,71). Compared with male and female migrants, transgender migrants transiting from a middle-income country to a high-income country experienced a significantly greater burden of violence, with psychological violence being reported most often (43). Transgender refugees living in a European country encountered similar stressors and traumas both before and after migration, but also stated that religion could be a protective factor for gender affirmation (72). Transgender women who have migrated to work from a south-east Asian country to a high-income country as *transpinay* entertainers view their experiences as a positive part of their gender affirmation process and sexual emancipation (73,74).

2.2.4 Menstrual hygiene management

Women and girls often face unique challenges in accessing WASH services and facilities, particularly for menstrual hygiene management (note that WASH is discussed as a separate determinant in section 2.10). In Cox's Bazar, Bangladesh, Rohingya refugees reported challenges around access, safety, privacy and dignity, such as the need for private washing spaces for menstrual hygiene materials. Male architects and engineers largely dominate WASH infrastructure planning and design, and often integrate sex assumptions into their work. These assumptions range from determining how much space is needed for women and girls to feel comfortable in WASH facilities to issues of privacy and safety. To counter this, the Women's Social Architecture Project included Rohingya women and girls and female architects in planning WASH facilities to provide a different perspective on how

to approach the design of these facilities and where to locate them (75). Among the suggestions included by women were to provide a ramp instead of steps leading to a latrine (as this is easier for older or pregnant women) and shelving and drying areas for sanitary products, and the preferred optimal configuration of privacy screens.

Other countries with large camp-based settings experience the same challenges. In a study among displaced Somali women in northern Kenya, women were often excluded from the design and implementation phases of sanitation initiatives, despite having reported concerns such as personal safety in areas of open defecation, the need for private spaces for menstruation management and problems related to FGM (76).

Poverty can also affect the health of refugee and migrant women, who may lack menstrual hygiene products and access to safe, clean and private toilets (77). A study among Venezuelan migrant women living in Brazil determined that almost half of participants who menstruated (46.4%) did not receive any hygiene kits, 61% were not able to wash their hands as often as they would have liked and the majority did not feel safe using public toilets.

2.3 Age

- The number of older people displaced by humanitarian crises is growing rapidly.
- The impact and needs of children are relatively better studied; however the impact and needs of older people forcibly displaced by catastrophic events are little known, but evidence shows older people are at particularly high risk in such crises across a variety of determinants.

Although the impact of sudden displacement on children is well documented and easily draws the attention of both the public and decision-makers (see section 3.4), less well known or provided for are the needs of older people pushed from their homes by catastrophic events, ranging from earthquakes and flooding to famine and violent conflict.

Ageing is an ever-increasing factor in global health, driven both by the growing longevity of the population and improved survival at younger ages (78,79). Recognizing this demographic fact and its implications, the United Nations General Assembly declared 2021–2030 the Decade of Healthy Ageing (80). WHO has the task of implementing this initiative through working with governments, civil society, international agencies, the private sector and other partners for a decade of concerted action to foster long, healthy lives.

This work will necessarily include the health needs of older refugees and migrants (Box 2.2), with consideration of the different ways that these are manifest across regions and contexts, diseases and conditions and their interaction with other determinants (81). For example, older refugees and migrants are sometimes categorized within two groups: those who have departed their home countries and arrived at their destination as older people, and those who arrived at a younger age and aged in the host country (82). Particularly vulnerable groups, including asylum seekers and migrants in irregular situations, will require specific attention, as will those affected by humanitarian crises.

2.3.1 Unaccompanied or separated children

Migrating without a parent or caretaker may create particular vulnerabilities for unaccompanied or separated children (UASC), including the risk of abuse, trafficking

or exploitation in transit and destination countries. During transit, UASC, particularly girls, may join families or groups to which they are unrelated to for protection; however, such groups can also be linked to exploitation and violence (83,84). UASC in Europe are overwhelmingly boys: in 2020 almost 9 in 10 children seeking asylum were boys. While boys may be more likely than girls to travel unaccompanied, this gender disparity may also be explained by challenges in identifying unaccompanied girls because many may go undetected by authorities, either voluntarily or involuntarily, and subsequently fail to receive essential services for health and protection (25).

UASC from the WHO African Region and WHO Eastern Mediterranean Region migrating to Europe often follow the Central Mediterranean Route or Eastern Mediterranean Route. However, the Central Mediterranean Route is particularly dangerous for UASC as they are more likely not only to travel alone but also to be exploited, spend more time in transit, and have limited access to protective systems (83).

Box 2.2.

Older age and migration

The number of older people displaced by humanitarian crises is growing rapidly. The proportion of people aged 50 years and older in fragile countries, where conflict and disasters are more likely to occur, is projected to increase from 12.3% (219.9 million) in 2020 to 19.2% (586.3 million) in 2050.

A 2019 study based on interviews conducted during humanitarian crises in 11 countries (Ethiopia, Jordan, Malawi, Mozambique, Pakistan, South Sudan, the Syrian Arab Republic, the United Republic of Tanzania, the Bolivarian Republic of Venezuela, Yemen and Zimbabwe) found that 77% of the older people interviewed lacked income, 64% did not have enough to eat and one quarter had no access to clean water (81). Women seemed to be disproportionately affected and accounted for 58% of those living alone, 56% of those caring for others, 56% of those with no access to health care, 58% of those with no access to food and 58% of those with no income.

Older people often encounter exclusion and discrimination, the erosion of traditional and family support systems, a lack of access to information and documentation, and limited access to basic services, including housing, food, nutrition and health. Almost four fifths (77%) of those interviewed said that they had not been asked by any other humanitarian agency about the services being provided to them.

The impact of these issues is exacerbated when older people have to take care of children or other adults. Nearly two thirds of those interviewed (63%) said that they were caring for at least one child, and 44% were caring for another older person.

Source: adapted from McGivern et al. (81).

For example, just under half of adolescents and young people interviewed on their migration experience on the Central Mediterranean Route reported they had been forced to work. In the WHO Region of the Americas, UASC transiting from Central American countries (Guatemala, El Salvador and Honduras) to the United States face family separation, struggles with reunification and deportation (85–87).

In destination countries, UASC face specific challenges upon reception and screening. For example, they may need to undergo an age assessment process, which holds its own risks: the processes are not consistent across countries, may be invasive, and can pose protection risks if not conducted properly (88–90). In a longitudinal study among UASC in Norway, 56% were not recognized as minors (91). At both 15 and 26 months after arrival, those who had been placed in reception centres for adults had higher levels of psychological distress symptoms

compared with those placed in youth reception centres. Additional challenges for UASC include detention, poor treatment from border and reception officials, and difficulty in accessing health care services because of being unaware of or having difficulty in accessing child-friendly health services (92–95).

The evidence shows that UASC have a significantly high risk of developing mental health issues. Contributory factors include forced separation from family, death of a close family member and lack of social support (96–101). Evidence from the Netherlands also indicates that the type of care facility in which UASC reside influences their mental health: UASC refugees who lived in large reception centres had the lowest quality of living environment and highest mental health problems compared with children living in all other types of accommodation, including in small living units or with foster families (102).

For refugees and migrants, schools often provide a service beyond their educational purpose by linking students with a range of social capital resources; serving as sites for immunization programmes; providing community-based nutrition interventions; and fulfilling their material, practical and emotional needs.

2.4 Education

- Both higher and lower levels of education are associated with poor health outcomes. A lower level of education is associated with poor uptake of health care services and risk of physical assault, whereas a higher level of education is associated with a lower level of physical activity.
- Access to good-quality education after migration is limited in many settings, often affecting young girls disproportionately.
- Across high-income settings, highly skilled refugees and migrants are often employed in jobs below their educational and employment qualifications.

2.4.1 Health outcomes

Refugees and migrants with lower levels of education often experience poorer physical or mental health outcomes than those with higher levels of education (103,104). The prevalence of HIV among Mozambican miners working in South Africa was found to decline with increasing levels of education (105). In a Canadian study, a higher level of education was found to be a protective factor in migrant women for physical assault and from poor mental health (106). A separate study found that refugees and migrants in Canada who were educated to above high-school level were 37% more likely to report excellent, very good or good health compared with those educated to high-school level or lower (104). In a study in Germany, a migration background and lower level of education were both associated with lower uptake of nonmedical antenatal care (ANC) (107). In a case-control study in the Islamic Republic of Iran, Afghan women refugees and migrants had a higher risk of maternal mortality than Iranian women; the risk was concentrated among women with lower levels of education (108). In urban refugees and asylum seekers in Thailand, a cross-sectional study revealed lower levels of education than in the host population, and unmet needs for health services were positively associated with lower levels of education (109). A community-based cross-sectional study of primarily young male migrant labourers in Ethiopia determined that a lower level of education was significantly associated with the risk of malaria (110).

Education level is often considered alongside sex as a determinant of health, with studies highlighting disparities that correspond to these factors for different health outcomes. A quantitative study on refugees in the United Kingdom found that the number of years of education was positively associated with refugee women's self-reported general health

status, although this association was not found for refugee men (111). An American study explored how education levels can mediate the association between age at migration and cognitive impairment (112). It concluded that migrant men who had migrated when they were older than 50 years had a significantly higher risk for cognitive impairment than their counterparts born in the United States, although this risk was not significant after adjusting for level of education. However, migrant women who had migrated when they were older than 50 years had a higher risk for cognitive impairment than women born in the United States, even after adjusting for level of education. Evidence from Europe highlights that the prevalence of diabetes in Ghanaian migrant men and women decreased as the level of education increased, although the prevalence increased with increasing level of education among their counterparts in rural Ghana (113).

Studies present a more nuanced picture regarding the educational attainment of refugees and migrants and their awareness of cancer. According to a cross-sectional study, Nepalese migrants in Japan with higher education levels were more likely to seek cancer-related health information compared with migrants with only primary education (114). An American study of prostate cancer screening among migrant men, predominantly of African descent, indicated that being unaware of prostate-specific antigen testing was associated with a low level of formal education (115). In a descriptive cross-sectional study, both Syrian refugees and Lebanese citizens with higher education levels recognized significantly more cancer symptoms and risk factors than those with lower education levels (116). Knowledge of the most common cancers impacting males was also low among both groups. Studies from various high-income settings, including Australia, the United States

and countries in Europe, reveal conflicting evidence on the influence of education levels on refugee and migrant women's cancer screening practices (117–122). For example, a study in Australia found no correlation between education level and participation in breast cancer screening practices among migrant women, whereas a cross-sectional study in the United States indicated that Korean migrant women with lower education levels were more likely to use breast cancer screening services such as mammography and clinical breast examination (119,120).

Alternatively, some evidence indicates that a higher level of education is linked to poorer health behaviour, specifically inadequate physical activity. Among Sahrawi refugees in Algeria, having higher education levels was associated with lower physical activity, as many were employed in sedentary jobs (123). A higher level of education was also associated with physical inactivity among Ghanaian migrants living in Europe (124,125). Ghanaians in Amsterdam with lower education levels reported having more physically demanding jobs and higher levels of physical activity compared with Ghanaians in Berlin and London, who had higher education levels. The association between level of education and health outcomes underscores the critical and far-reaching role of education as a determinant of health for refugees and migrants.

2.4.2 Access to education for refugee and migrant children

Access to good-quality education and schools for refugee and migrant children may be inconsistent or limited along the migration pathway, and this often intersects with other social determinants of health. For refugees and migrants, schools often provide a service beyond their educational purpose by linking students with a range of social capital resources; serving as sites for immunization programmes;

providing community-based nutrition interventions; and fulfilling their material, practical and emotional needs (126–129). However, various barriers to education remain, many of which disproportionately affect school-aged girls. In Thailand, the country's Education for All initiative aims to provide all children, regardless of legal status, the right to an education; however, migrant children may be prevented from attending school by their parents' fears of local authorities, the high costs of school supplies and language barriers (130). Despite efforts and policies in Rwanda to encourage continuation of schooling, pregnant Burundian refugee girls reported low attendance, largely a result of the stigma associated with teenage pregnancy (131). In Lebanon, adolescent Syrian refugee girls who had lost educational opportunities as a result of displacement reported not attending school because of financial limitations and concerns about SGBV in and around schools (132).

Parental influence and perceptions of education also affect children's enrolment and participation in schools. In a study in Chile, migrant parents of children aged 1–6 years who were not enrolled in school indicated this was because they considered it unnecessary or did not trust the care provided by the school system (133). Arabic-speaking migrant parents living in Sweden cited concerns about the sex education received by their children in Swedish schools, which may accentuate intergenerational conflicts (134). In Bangladesh and Jordan, refugee girls reported parental discouragement and cultural expectations of early marriage as reasons for dropping out of school, as parents may not value education for girls as much as they do for boys. However, some evidence indicates that early marriage is not always imposed but might result from the girls' or families' living situations, where economic hardship and insecurity play a big role in decisions about marriage (135–137).

This calls for further research to develop interventions that address the root causes of early marriage. In the case of Rohingya refugees in Bangladesh, despite free education in camps, teacher negligence (e.g. inconsistent attendance and poor teaching practices) driven by low incentives was an additional barrier to education (137).

2.4.3 Employment challenges associated with level of education

Across high-income settings, such as Australia, the United States and countries in Europe, highly skilled refugees and migrants are often employed in jobs that are below their educational and employment qualifications. This is especially the case among highly skilled migrant workers who work in low-skilled jobs and face obstacles to entering the labour market (138–140). Refugees and migrants may face significant delays in acquiring work visas and having their professional qualifications verified, during which time they may take on less-skilled work (141,142). Despite evidence indicating that migrants in the United States were relatively successful in finding work, their occupations did not always match their training or skills, a factor that has affected their quality of life and mental health (143). Some countries have adopted policies in response to these challenges. Several countries have introduced policies that place highly skilled migrant workers in workplaces that match the needs of employers, namely Australia; China, Hong Kong Special Administrative Region; New Zealand; and Singapore (141). In Germany, policies for skilled migrant workers came into effect in early 2020, thereby expanding opportunities for qualified professionals from outside the EU to work in Germany (144). Ensuring the recognition of educational and professional qualifications was critical to integrating refugees and migrants into the labour markets of host countries (145).

Refugee and migrant women in many WHO regions report low levels of health literacy and inadequate knowledge of sexual and reproductive health topics, such as human papillomavirus vaccination, contraception, cancer screening and menstruation.

2.5 Health literacy

- A low level of health literacy, combined with language barriers, hinders the seeking of health care services and adherence to treatment.
- In situations of mass displacement and certain types of labour migration, such as for agricultural work, refugees and migrants often have lower levels of health literacy than the host population.
- Various strategies can improve health literacy among, and communication with, refugees and migrants, including translating clinical and health promotion materials, offering interpretation services within health services and sensitivity training for health staff in cultural and age differences.

WHO states that health literacy is an integral component of PHC and a critical determinant of the well-being of individuals, communities



A migrant worker uses a tele-kiosk to speak to a doctor from his dormitory in Singapore. © WHO / Juliana Tan

and health systems (146,147). Many factors relevant to refugees and migrants affect an individual's health literacy. A study of homeless people in Spain, both migrant and of the host population, found no differences in health literacy between the groups (148). However, homeless migrants tended to have more issues related to health care access and utilization and were often not insured when compared to homeless people in the host population. The study concluded that migratory status, language proficiency and socioeconomic status (SES) all play key roles in health literacy and health outcomes.

2.5.1 Influence on health outcomes

Refugees and migrants often report lower levels of health literacy than their host populations. This is of particular concern since refugees and migrants may struggle to adhere to care practices or to seek preventive health care services (149). Refugee and migrant women in many WHO regions report low levels of health literacy and inadequate

knowledge of sexual and reproductive health (SRH) topics, such as human papillomavirus (HPV) vaccination, contraception, cancer screening and menstruation (150–157). Cultural stigma, taboos and feelings of shame and embarrassment often limit discussion of these topics. However, without critical SRH education and information, many women may remain vulnerable to problems such as sexually transmitted infections (STIs) and unplanned pregnancies. Refugees in Cox's Bazar, Bangladesh, and in Ethiopia reported limited knowledge of how to treat diarrhoea, despite this being a common illness in such circumstances (158,159). In Canada, a study found that 75% of migrants lacked the health literacy skills to maintain good health compared with 55% of non-migrants. This discrepancy remained even after adjusting for factors such as sex, age, household income and employment status (160). In Germany, a migrant background was found to be significantly associated with lower levels of health literacy (161).

Language barriers also hinder communication between health care providers and their refugee and migrant patients, with both groups citing a need for interpreters during medical consultations (162–166). Interpreters and mediators are especially important to facilitate complex registration processes (167). Research in Switzerland found that a lack of interpreters led to migrants using family members or minors as translators or even resorting to using gestures to communicate (164). In Australia, Afghan women reported that few on-site interpreters were available during imaging and pathology screening appointments, and virtually none were present during labour and birth, leaving many women to depend on their husbands for translation (168). Alternatively, health care providers caring for refugees in Australia, Canada, Ireland and the United States reported that the use of trained interpreters during medical consultations comes with its own challenges, including poor professionalism by interpreters and low confidence and trust in interpreted consultations (169).

Evidence from the United States indicates that health care providers may perceive refugee and migrant parents as having low levels of health literacy, which can have an impact on the establishment of trust between the two parties (170). Different perceptions of ill health and limited knowledge of traditional medicine among health care providers further contribute to these challenges (171). Both patient- and provider-based health literacy difficulties were identified in the provision of maternity care to migrant women in Australia (172). Health care providers have urged the use of technical resources such as electronic health (e-health) tools, digitalized patient portals and electronic reminders in conjunction with health provider communications to support health literacy and information needs.

2.5.2 Strategies to improve health literacy and communication

Various strategies have been adopted to improve health literacy and communication among refugees and migrants. These should take interest, need and engagement into account, along with sociocultural context (173–180). Strategies may include trained cultural mediators and digital approaches. The deployment of trained interpreters and cultural mediators has proven to be useful in communicating with refugees and migrants, and in improving their health (181,182). In the United States, a study conducted with primarily Hispanic migrant women revealed that most (71.3%) were quite open to participating in HIV health education via the internet (173). Among migrant cancer survivors in Australia, evidence showed there was a need for specific written health information related to recovery time after treatment in the language of the migrant and appropriate for their culture and community (174). These findings from Australia indicate that bilingual resources can be beneficial to cross-generational families with varying levels of proficiency in English.

Research in Sweden suggested that to improve self-care adherence among migrant patients with heart failure, nurses should become more sensitive to cultural differences and adapt self-care counselling to the patient's level of health literacy (175). For example, research exploring the interaction between Australian health care practitioners and refugees from Myanmar concluded that the use of metaphors in sexual health dialogue was more linguistically appropriate and culturally accepted than verbatim or literal translations (183). As a result, awareness of the nuances in sexual health vocabulary made dialogue around sexual health more culturally appropriate and allowed health care practitioners to develop a better rapport with their patients. Beyond being culturally and linguistically appropriate

for refugee and migrant populations, health communication should also consider the needs of those who are illiterate or have learning disabilities.

2.6 Income

- Direct and indirect costs of health care, including out-of-pocket payments, are problematic for many host populations, but can be an even greater barrier to health care for refugees and migrants, particularly irregular migrants and those in precarious employment.
- Sending remittances home is an essential motivator of labour migration, but may cause migrants to deprive themselves of good nutrition and hinder health-seeking behaviour.
- Remittances often benefit the health-seeking behaviour of left-behind families in the home country, but the association is not fully understood. However, family separation and long-distance relationships can have negative impacts on the mental health of left-behind children and older people, such as grandparents.

Income is a key determinant of health outcomes and access to health services. In addition to being a barrier to accessing health services, economic insecurity may worsen the physical and mental health of refugees and migrants.

2.6.1 Health outcomes

Economic insecurity, poverty and low income are often associated with negative physical and mental health outcomes. Chapter 4 on health systems includes the topic of health financing (section 4.6) and of the direct and indirect

costs, including out-of-pocket payments, that are often a barrier to health care for refugees and migrants. Evidence from refugee camps in occupied Palestinian territory, including east Jerusalem, highlighted the link between income and chronic diseases: the prevalence of chronic diseases was found to be higher among groups with a lower income (184). Access to the labour market and income generation significantly improved the mental health of refugees in Canada (185), while research in South Africa highlighted the role of reliable income and economic capital in determining positive health outcomes among sub-Saharan African migrant women (186). Similarly in Sri Lanka, belonging to temporary migrant households with lower SES was associated with an increased risk of suicidal behaviour (187).

2.6.2 Remittances and left-behind families

Migrants who move for economic or labour reasons can face persistent or continued poverty in the post-migration process, particularly if they must send remittances to families in their home countries (section 1.7.4 discusses left-behind families). In recent years, active immigration policies in countries such as Australia and Singapore have contributed to an increase in immigration in the WHO Western Pacific Region (188), which contains 3 of the 10 countries receiving the most remittances worldwide: China (which is also a top sender of remittances), the Philippines and Viet Nam (189).

In North and South America, migrants from Colombia reported experiencing material deprivation and deep poverty in host countries because of a combination of low wages and sending remittances to their families in Colombia (190). Similarly, in the United Arab Emirates, low wages made it difficult for Bangladeshi migrants to balance daily

living expenses with sending money to their families (191). In Pakistan, family members left behind by migrant workers, particularly the wives of migrating husbands, reported a high prevalence of depression and anxiety; however, having a son who had migrated provided economic benefits and had a positive effect on their use of health services (192–194). In Chile and the United States, family separation and distance from the country of origin were reported to be among the major sources of stress (195,196).

Although remittances may help the families of migrant workers to access health services in their home countries, the impact on health and well-being varies. In Togo, the families of international migrants showed increased use of health care services, specifically for maternal and child health (MCH). This increased use was the result not only of additional financial support from remittances but also of exposure to new ideas and practices (197). However, among sub-Saharan African migrants living in France, remitting money and having a child abroad were associated with poor health among migrant women, although not among migrant men (198,199). In Sudan, pressure for women to accept unsolicited or unwanted advice about childbearing or child-rearing from male relatives who had migrated abroad was found to cause stress and anxiety in the families left behind. (200). A study comparing the impact of parental migration on children who are left behind in Ethiopia, India, Peru and Viet Nam found that the negative health effects were greater for children whose parents had migrated for longer periods (201). The context also matters: parental migration was not found to have a significant impact on children left behind in Ethiopia, whereas it led to poorer health outcomes for the children left behind in the other three countries.

2.7 Migratory status

- Fear of deportation and anti-migrant discourse reduce the willingness of migrants to access health services, leading to late diagnosis and, consequently, poorer health outcomes.
- The impact is particularly high among irregular migrants who lack official documents and work in marginalized industries and among asylum seekers whose status has not yet been recognized.

Migratory status, including legal status according to legislation in the transit or destination country, is another important determinant of the health of refugees and migrants. Lack of legal documentation, fear of deportation, and anti-refugee and anti-migrant discourse often prevent refugees and migrants from accessing health services (162,188,202–206). Studies conducted in Sabah, Malaysia, noted the role of citizenship and nationality among migrant children of Philippine and Indonesian migrants and their access to key services. Some had reportedly faced delay as a result of their citizenship status (207,208). In Australia, irregular migrants may not be entitled to free regular health services but only to free emergency care (209). In the WHO South-East Asia Region, fear of deportation because of migratory status as well as higher costs for primary care were reported by irregular migrants as barriers to accessing health care (210,211).

A 3-year cohort study in the United States found that growing anti-migrant rhetoric during the study period was associated with a 43.3% decrease in PHC visits by irregular migrant children and a 34.5% decrease by irregular migrant adults (202). In North and

South America, irregular migrants were found to often experience stress, anxiety, fear of administrative barriers, mobility restrictions and constant uncertainty about immigration enforcement (212–214). How health access and outcomes are influenced by migratory status is discussed in detail in Chapter 3. Section 4.7 presents clear examples of how policies based on migratory status limit access to various services for refugees and migrants.

2.8 Social support

- Stress from displacement and migration is itself a determinant of health among refugees and migrants, but it can be alleviated by interventions such as counselling and community outreach.
- The impact of stress is often compounded by leaving behind social support networks.
- Women, particularly mothers, face particular forms of stress in the absence of social support.
- Acculturation – how individuals and groups adapt to the culture of a host country – can be a source of stress and reduce health-seeking behaviour, but it can also be mitigated by health and social system outreach.

The presence or absence of social support may also influence refugee and migrant health status, particularly their mental health. Stress resulting from displacement and migration can be compounded by the loss of social support networks and by acculturation processes experienced in the host country (215,216). Several studies showed that forced displacement and its impact on mental health was partly caused by the loss

of psychosocial support systems (20,217,218). In Sweden, for example, a high prevalence of PTSD and depression was found in UASC who had experienced family separation and displacement (219). In several other regions, displacement was also associated with increased sexual risk behaviour for economic and psychosocial reasons (including transactional or survival sex), loss of social support and loneliness (220–222).

2.8.1 Acculturation

In the WHO Region of the Americas, low levels of acculturation were a barrier to accessing health services and were linked to less-informed decision-making about medical treatment (214,223,224). The process may be described as acculturation stress, which is induced by adaptation to a new culture and exacerbated by discrimination and exclusion. A study of Mexican migrants in the United States showed that acculturation stress can lead to poor health outcomes, including mental health issues (225). Conversely, acculturation may also lead to the development of protective factors over time, related to both the strengthening of social networks and family cohesion (226). However, there are gaps in the literature on the impacts of migration- and displacement-related stressors on health and on family support systems.

2.8.2 Parenting

Women, particularly mothers, face particular forms of stress in the absence of social support. A study conducted among Syrian refugees in Lebanon modelled the effects of war exposure and daily stress on maternal mental health, parenting and child psychosocial adjustment (227). The results suggested that both war exposure and daily stress can affect the general mental health of mothers and increase the risk of negative parenting behaviour, contributing to poorer psychosocial outcomes for children. The study

concluded that psychosocial and parenting support should be provided for war-affected caregivers, along with interventions to provide for basic survival needs, ensure access to quality health and education services, and break down restrictions on movement and employment. Among refugees living in the United States, the documented effects of maternal traumatic distress on children included depressive symptoms, antisocial behaviour and delinquent behaviour (228).

Research in the United Arab Emirates noted a higher prevalence of symptoms of depression among adolescent migrants (aged 12–18 years) from southern Asia (33.3%) compared with adolescents from the host population (22%) (229). Not receiving a monthly allowance from parents and coming from a single-parent family or a household with low monthly income were predictors of a higher score on a depression scale. Depressive symptoms were associated with poor self-esteem and with experiencing neglect and verbal abuse in school. Conversely, refugees and migrants may find family and social support in their host countries, which may bring health benefits.

2.8.3 Substance use

Substance use and dependence pose a health challenge to diverse populations worldwide and are associated with a wide variety of social determinants, including for refugees and migrants. Studies among refugee groups in several African countries indicated that alcohol and substance use were associated with a higher prevalence of mental health conditions, including a higher prevalence of psychopathologies, as well as related to SGBV or intimate partner violence (IPV) (230,231). At the same time, certain refugees and migrants consume substances at lower rates than local populations for a variety of reasons that may include sex, religion and cultural norms in

their countries of origin (232). The complex interplay of social determinants also makes interventions difficult (233–235).

Acculturation was found to play a role in the prevalence of substance use in various studies based in the WHO European Region (234,236). Cross-sectional data from the Finnish Migrant Health and Wellbeing Study demonstrated that having a younger age, higher level of education, employment, longer duration of residence in Finland and language proficiency were associated with binge drinking and daily smoking, with varying patterns of association depending on migrant group and sex. For example, a lower level of education and poor language proficiency acted as protective factors for Kurdish migrant women, given their adherence to traditional cultural norms around substance use (232). The impact of length of stay in the host country remained a factor, although the correlation weakened after adjusting for perceived risk of substance use and dependence (all substances) and for substance accessibility (illegal substances);

Improving energy access for refugee populations, such as through improved cooking stoves, can reduce reliance on biomass and the accompanying challenges, such as high household energy expenditure and poor indoor air quality. It can also reduce the risk of SGBV for women when seeking firewood.

however, some migrants were protected from this phenomenon, presumably because of factors related to their country of origin (234).

Some studies in the United States indicated varying patterns of association for young migrants from Latin America at risk of being drawn into early substance use, but education was a protective factor (237,238). In the WHO Region of the Americas, traumatic experiences during migration often led to a convergence of mental health issues. Interventions targeting substance use in Latin American migrant populations, although effective in improving mental health symptoms, failed to reduce their substance use (239).

Access to handwashing facilities is essential to reducing the transmission of communicable diseases and maintaining safe hygiene practices but can be limited. Maintaining hygiene in refugee camps is challenging as access to handwashing facilities might be limited, hygiene supplies scarce and conditions crowded, thereby increasing the risk of outbreaks of communicable diseases.

2.9 Air quality

- Air quality is critical to the health of refugees and migrants, especially those living in camps and irregular settlements, where the burning of biomass is linked to poor respiratory health.
- In workplaces or dormitories, where many migrant workers spend a great deal of time, overcrowding and inadequate ventilation have been found to contribute to the spread of communicable diseases.

Ensuring proper environmental conditions relating to ventilation, heating and cooling, and indoor air quality is critical for supporting the health, and especially the respiratory health, of refugees and migrants. The literature emphasizes health risks in two settings: refugee settlements and camps; and workplaces and work-related housing.

Migrant workers report facing a variety of hazards related to air quality, which ultimately affects their health and quality of life. A study carried out among migrant farmworkers in the American state of North Carolina found numerous health challenges in their living conditions. These included limited ventilation, extensive mould and dampness, pests such as cockroaches, heating units emitting smoke and fumes overnight, and having to eat and sleep near fields newly sprayed with pesticides (240). Other evidence indicated that being a migrant in the United States is significantly associated with experiencing air of better-than-average quality, whereas being a member of the host population is strongly associated with experiencing air of poorer-than-average quality. The literature indicates that this disparity may be explained

by migrants' consumer and environmental behaviours, which can have a lesser impact on air quality compared with the habits of their counterparts in the host population (241).

In a study of migrant workers in central Thailand, almost half reported never opening their bedroom or living room windows for ventilation and 45% reported never cleaning their window screen, with many citing a lack of time for home hygiene as a result of long working hours (242). Notably, 43.8% of migrants in the study presented symptoms that may be related to indoor air quality. Among Rohingya refugees living in Cox's Bazar, Bangladesh, conditions such as overcrowding, indoor cooking practices and the use of air-impermeable plastic sheets to build shelters can contribute to the spread of acute respiratory infections, which are among the main causes of death for this population (243). (The link between housing and health outcomes is further discussed in section 2.11.1.)

The burning of biomass (wood is by far the most common, but other types include animal dung, crop residues and grass (244)) is of particular concern for the health of refugees living in camps. A comparative study found variable air quality in refugee camps across 10 countries. In shelters in Bangladeshi, Djibouti and Ethiopian camps, where solid fuels are primarily used for cooking, the levels of total volatile organic compounds exceed the recommended safe levels (245). This contrasted with camps in Jordan, Peru and Türkiye, where gas bottles are primarily used as cooking fuel and detected levels of these compounds were lower than the recommended maximum concentrations. In the case of Rohingya refugees in Bangladesh, many shelters lack proper ventilation because their kitchen area is often not separated from their living spaces

(246). Such conditions increase airborne particulate matter pollution to levels beyond the guideline maximum values.

Burning solid fuels has been linked to poor respiratory health among refugees in Rwanda and the United Republic of Tanzania. However, the use of energy-efficient cooking stoves can significantly improve lung function and have a positive impact on respiratory health, including among individuals with pre-existing airway obstruction and chronic obstructive pulmonary disease. Among Congolese refugees with airway obstruction in Rwanda, a prospective cohort study showed that those who use an energy-efficient cooking stove experience a significant increase in forced expiratory volume compared with baseline groups (247,248).

Indeed, improving energy access for refugee populations, such as through improved cooking stoves, can reduce reliance on biomass and the accompanying challenges, such as high household energy expenditure and poor indoor air quality. It can also reduce the risk of SGBV for women when seeking firewood (249,250). Additional efforts to address poor air quality include the use of turbine ventilators in refugee camps and recycled plastic bricks as construction material to reduce the high carbon dioxide emissions; however, evidence of the impact of such efforts is limited (251,252).

2.10 Water, sanitation and hygiene

- Challenges to securing WASH services in refugee and migrant settings include scarce hygiene supplies, financial barriers, inadequate measures to counter waterborne diseases, and varying levels of knowledge of hygiene and handwashing practices.
- Refugee populations in camp settings face a variety of challenges to securing safe drinking-water, especially – but not only – in places where water is scarce.
- Some evidence indicates that a higher level of education is associated with greater adherence to safe water-chain practices across all stages between the water source and consumption.
- Although some refugee and migrant groups lack knowledge of hygiene practices, the evidence indicates that disease outbreaks can be prevented when WASH standards are applied (e.g. protecting a water source from contamination, ensuring the proximity of the water source or limiting the number of people using a particular latrine).

2.10.1 Access to safe drinking-water

Refugee populations face a variety of challenges in securing safe drinking-water, particularly when facing water constraints in camp-based settings. Refugees living in camps in the Gambella region of Ethiopia and refugees from occupied Palestinian territory, including east Jerusalem, living in Lebanon's Shatila camp reported that their drinking-water was contaminated with faecal coliform bacteria and parasites (253,254). Other challenges in securing safe drinking-water included the lack of maintenance of

wells and equipment, improper water storage and misperceptions about water quality.

Some evidence indicates an association between a higher level of education and greater adherence to safe water-chain practices. In refugee camps in Ethiopia, households where women (described in the study as caregivers) have no formal education were significantly more likely to have water contaminated with faecal coliform bacteria than households whose caregivers had completed secondary education (253). Similarly, in the Pagirinya Refugee Settlement of northern Uganda, individuals with formal education were more likely to observe safe water-chain practices than those with no formal education (255). Additional barriers to safe drinking-water across refugee camps include long distances between households and water sources, water shortages in the previous month, improper storage and the unavailability of free residual chlorine (255–258). Psychological stress caused by the absence of clean drinking-water was identified as a risk factor for mental health among young (aged 18–32 years) Syrian male refugees living in a refugee camp in Jordan (259).

2.10.2 Access to safe sanitation

Innovative sanitation systems, such as urine-diverting dry toilets (UDDTs), have been introduced into some refugee settings, but with varying results. In the Dollo Ado refugee camp in Ethiopia, research on the acceptability of UDDTs found high use among survey respondents (88.8% and 93.4% in two surveys conducted 18 months apart) (260). Satisfaction levels were significantly higher in the second survey, with 97% of respondents indicating that they were mostly or very satisfied with UDDTs. However, UDDTs were not as widely accepted in the Kakuma refugee camp in Kenya by users who perform anal washing (a cultural practice

in their home country) or by women who had experienced FGM (261). These examples illustrate the importance of sociocultural context in assessing the acceptability of sanitation systems. Many settings may also require different interventions to account for the estimated length of stay and population size. Box 2.3 describes the challenges faced by Rohingya refugees in Cox's Bazar, Bangladesh, in accessing WASH services.

2.10.3 Hygiene

WASH interventions are critical because they address basic and essential needs, including handwashing facilities and hygiene practices. Access to handwashing facilities is essential to reducing the transmission of communicable diseases and maintaining safe hygiene practices but can be limited. Maintaining hygiene in refugee camps is challenging as access to handwashing facilities might be limited, hygiene supplies scarce and

conditions crowded, thereby increasing the risk of outbreaks of communicable diseases.

Among South Sudanese refugees in the Rhino Camp Settlement in north-western Uganda, only 23.1% of households reported having access to adequate handwashing facilities, with many citing barriers such as the high cost or lack of soap (264). Despite some improvements in WASH activities, many people in refugee camps across the WHO African Region and WHO European Region continue to experience outbreaks of cholera and typhoid fever, as well as the risk of parasitic infections (265–267). A study in the Borgop-Cameroon refugee camp found that it had not experienced a waterborne disease outbreak in the previous 6 months, probably as a result of conforming to numerous WASH standards, such as ensuring the availability of a protected water source and of sufficient distance between latrines and water sources,

Box 2.3.

Water, sanitation and hygiene in Cox's Bazar, Bangladesh

The rapid influx of Rohingya refugees into Cox's Bazar, Bangladesh, in 2017 resulted in the formation of new temporary settlements.

These settlements faced many challenges related to water, sanitation and hygiene (WASH), including a lack of WASH facilities and infrastructure; the risk of transmission of diseases such as cholera, diarrhoea and typhoid; a shortage of land area and groundwater; and susceptibility to floods, landslides and soil erosion. Areas of improvement included raising awareness among refugees of waste disposal and proper washing of transport containers (262,263).

The COVID-19 pandemic exacerbated these WASH challenges in an already resource-limited setting. The pandemic made frequent handwashing and maintaining basic hygiene more difficult, with a greater need for new handwashing locations, an increased water supply and additional hygiene promoters (246). Recommendations for addressing the WASH challenges include designing and implementing infrastructure that ensures a long-term water supply, rainwater harvesting and alternative methods for sanitation, such as urine-diverting dry toilets.

and providing the recommended average amount of water per person (268).

Evidence from widely separated camps (in Rwanda and Thailand) on knowledge, attitudes and practices regarding waterborne diseases and WASH practices revealed that many refugees possess poor knowledge of safe water practices. A long duration of stay, unemployment and higher age were significantly associated with poor handwashing practices (267,269).

Migrants often work in occupations where maintaining good hygiene and handwashing practices is imperative, as a protective measure for both the individual and the host community. Migrant farmworkers in the United States are at a heightened risk for additional environmental exposures, such as pesticides, that make access to handwashing facilities even more critical; however, prevalent barriers remain, including a need to promote consistent handwashing behaviours and routine handwashing in migrants and to ensure the provision of hygiene supplies (270–272). In Malaysia, a study among migrant food handlers reported poor-to-moderate knowledge of hygiene practices and food safety (273). Migrants who demonstrated poor knowledge often struggled to understand the information given during food training

programmes as a result of communication challenges, language barriers and low levels of education. Similarly, compared with the host population, Nepalese migrants living in China, Hong Kong Special Administrative Region, displayed considerably poorer knowledge of hand hygiene, with many reporting low levels of education (274).

2.11 Housing and living environments

- For refugees and migrants, poor living environments, of which housing is a major factor, are associated with adverse physical and mental health outcomes, such as respiratory diseases and depression.
- Refugee and migrant children living in poor-quality, inadequate housing, particularly in informal settlements, are more likely to experience health problems than children in better-quality housing.
- Although immigration detention is increasing worldwide, information about many detention facilities is restricted and comprehensive data are rare. The available studies have documented harmful physical and mental health impacts due to overcrowding, uncertainty around the period and conditions of detention (especially in countries with no time limits), isolation, confusion, limited health care and insanitary detention conditions.
- Access to safe and secure housing can vary greatly depending on migratory status, which can determine whether refugees and migrants are included in national policies and programmes or qualify for support from international organizations.

The inhumane conditions and legal uncertainty of immigration detention can have devastating effects on the mental health and well-being of detainees.

Health can be influenced by living environments directly, through poor-quality heating systems and overcrowding, or indirectly through social marginalization, lack of sense of dignity and neighbourhood violence.

The inhumane conditions and legal uncertainty of immigration detention can have devastating effects on the mental health and well-being of detainees. Refugee and migrant populations experience several overlapping challenges related to housing, which often exacerbate their already precarious circumstances.

2.11.1 Housing

The physical state of housing can influence health outcomes. Refugees and migrants can live in a wide variety of settings according to their migration context; for example, those with greater means may live in secure housing, while those in transit or in protracted displacement may find themselves in informal settlements living in tented structures for many years or in detention contexts. Poor living conditions and insecure housing may be associated with adverse physical and mental health outcomes for refugee and migrant populations (275–277). Such an association was observed in informal settlements in Lebanon, where a considerable number of households had more than eight housing problems, including the presence of mice, shared or no bathrooms, lack of natural light and exposed electric wiring (278). Children in these households were more likely to have three or more health problems than children in households with fewer than six housing problems. Further evidence from Syrian migrant agricultural workers in Lebanon found links between a variety of health conditions and poor housing and infrastructure (279).

Overcrowded living spaces increased the risk of communicable disease transmission, especially in refugee camps and in common dormitories and labour camps for migrant workers (280–284). In Algeria, overcrowding among refugees from Niger created an ideal environment for the spread of head lice and louse-borne pathogens (285). In Nyala, Sudan, refugees living in overcrowded camps were affected by a variety of skin diseases (286). In Costa Rica during 2012–2015, a key factor in tuberculosis (TB) transmission among migrants was the high prevalence of overcrowding, which was often driven by low SES and limited geographical mobility (287).

In addition to the risk of communicable disease transmission, refugees and migrants may be exposed to various environmental and social risk factors in their living environment. Poor and insanitary living conditions, such as mould, water damage and indoor pesticide use, contributed to respiratory health problems among migrant farmworkers in the United States (288). In the WHO Region of the Americas, migrants living in crowded housing conditions experienced a poorer quality of life and increased risk of violence and felt less able to protect themselves (289–292). Secure housing was associated with better mental well-being and reduced risk of mental disorders for refugees from occupied Palestinian territory, including east Jerusalem, living in Lebanon's Shatila refugee camp (293). Similarly, the absence of comfortable accommodation was a risk factor for poor mental health among young (aged 18–32 years) Syrian male refugees in the Za'atari camp in Jordan (259).

In Italy, informal settlements, such as those found in areas of seasonal agricultural work, can represent unsafe and insanitary housing and living conditions (294,295).

Refugees and migrants may also lack residential stability and experience homelessness. In a study in Denmark, Romanian Roma migrants reported unsafe, poorly managed and unaffordable housing, in addition to discrimination and language and cultural barriers, which often led to homelessness (296). In Kirkuk, Iraq, the majority (58%) of street children (defined as children who experience homelessness and live on the street) were found to be refugees (297).

2.11.2 Immigration detention

Immigration detention is a growing global phenomenon that involves detaining foreign nationals as part of administrative, criminal or ad hoc procedures for immigration- or asylum-related reasons. States typically impose these detention measures – which can last from a few hours to several years – to ensure that a person is deported; to verify identity or other documents while an application for protection is being processed or migratory status is being resolved; or to prevent absconding during the adjudication process (298). In the migration context, detention can be defined as "deprivation of liberty decided by the competent administrative authority of a State, whether it is subject to judicial review or not" (299). Detention is often imposed without distinguishing between asylum seekers, irregular migrants, stateless people or refugees (300,301). Certain forms of detention occur at points of entry or along borders, which some countries do not consider to be detention. However, these ad hoc and transit detention practices are forms of deprivation of liberty according to the UNHCR Working Group on Arbitrary Detention, which has affirmed that detention includes all forms of "deprivation of freedom either before, during, or after the trial ... as well as deprivation of freedom in the absence of any kind of trial" (302).

An array of sites is used for immigration detention. In the EU, directives require Member States to use specialized facilities – which might include structures that used to be prisons – for confining people who are in return procedures. However, in Canada, Morocco, South Africa, Switzerland and the United States, among other countries, police stations and prison systems are widely used in addition to dedicated centres. In many countries, particularly those that do not have well-developed migration laws or face surges in arrivals, people may be confined in ad hoc detention centres, such as abandoned hotels, shipping containers, open-air camps, warehouses or other informal sites (303).

The COVID-19 pandemic has underscored the importance of broadly defining migration detention because it led to a rise in new, ad hoc detention situations (304). It also led many states to release people from immigration detention, impose moratoria on immigration detention and scale-up the use of non-custodial alternatives.

There are limited data on how many people are placed in immigration detention worldwide. However, studies have shown that this practice is growing, both within countries and across more states, as destination countries seek to externalize migration controls. In the EU, the number of people placed in detention has increased in recent years, with the annual number of detainees more than doubling in some Member States (305). Experts have also documented how key countries have extended detention practices across the globe, leading to the emergence of new migration detention systems that are either offshore or situated in neighbouring countries (306–308). As part of a 2015 survey on the availability of detention data in 33 countries in Europe and North America, a team of investigators reported that only six countries

provided full responses to information requests about basic detention data (309).

The harmful impact of immigration detention on people's physical and mental health is well documented, although much of the focus has been on mental health outcomes in administrative detention centres located in high-income countries. Data is lacking on health indicators specific to countries and regions across all income levels. However, experts agree on the need "to develop specialized models and practices of care for the increasing numbers of people across the globe who are confined in detention centres (which could be prisons) for reasons related to their migratory status" (310). Adding urgency to these calls are numerous reports detailing deaths, suicides and cases of self-harming in immigration detention settings (311,312); these are often attributed to a failure to provide adequate health care and to the inhumane conditions of detention (313,314).

The few studies of health outcomes comparing differing national systems indicate that the detrimental impacts of poor detention conditions are endemic. For example, a 2020 study of European detention centres found that "living conditions in the immigration detention settings [were] detrimental to health across all studies" and that the "migrant health experience, consideration of their health and well-being, and the provision of appropriate, responsive health care in immigration detention settings ... appeared sub-standard" (315).

Inhumane conditions of detention are frequently cited as features of ad hoc detention situations in transit countries that are the focus of externalized migration controls. A study of a detention centre in one such country concluded:

Living conditions failed to meet minimum requirements. Health problems diagnosed at [health care facility] consultations reflect the living conditions and consist largely of diseases related to overcrowding, lack of water and ventilation, and poor diet. Furthermore, every month that people stay in detention increases their risk of malnutrition (316).

Other areas of study of health indicators include the impact of detention on children (Box 2.4), as well as on people with pre-existing trauma, such as torture survivors and victims of human trafficking; health impacts stemming from the uncertainty inherent in migration detention; the need for improved health screening for people entering detention; morbidity and mortality; and concerns about health care provision in privately operated detention centres.

The excruciating uncertainty migrant detainees often face as a result of the interminable lack of resolution of their cases, bewilderment over why they appear to be locked in prisons and the lack of clarity over how long they may be detained can have a severe effect on their mental health and well-being (320). Much has been written about the deleterious effect of detention in countries that lack detention time limits, including Australia, Canada, the United Kingdom and the United States (321).

Other studies have underscored the lack of access that detainees have to the outside world, including to family support networks, and their subsequent sense of isolation (322); confusion stemming from being detained without being charged with a crime; limited health care provision, including failure to distribute sufficient medicines (323); insanitary detention conditions (322); and the unsuitability of migrant detention systems to treat the specific needs of women (324).

Box 2.4.

Detention of refugee and migrant children

In preparation for drafting of first ever United Nations Global Study on Children Deprived of Liberty, the Independent Expert on Children Deprived of Liberty issued questionnaires to all countries in 2020 asking for data on children in all forms of detention. Based on evidence generated by the Independent Expert's questionnaires and a review of the data, the study estimated that some 80 countries detain children for migration purposes, with the annual number of detained children reaching a conservative estimate of 330 000 (317). In contrast, in a review of 12 countries, the Office of the United Nations High Commissioner for Refugees found that in 2014 nearly 165 000 children were detained (300). However, immigration detention of children is prohibited under international law (318).

Concerning children, there is now overwhelming consensus that even very brief detention can have lasting detrimental impacts on a child's mental and physical health (317,319). Based on the body of evidence in support of this conclusion, the Office of the United Nations High Commissioner for Human Rights Committee on the Rights of the Child, which oversees implementation of the United Nations Convention on the Rights of the Child, concluded in a 2018 general comment about the human rights of children in immigration detention that there can be no justification for locking up children for immigration reasons because, in all cases, it "conflicts with the principle of the best interests of the child", one of the cornerstone principles of the global human rights framework established in Art. 3 of the Convention (318).

The growth of privately operated immigration detention centres has led to concerns over the dual loyalties of health care providers, which may affect trust and the delivery of services (310,325). To mitigate mental and physical harm in detention centres, there are increasing calls to improve health screening. However, cross-national studies found that many countries fail to undertake adequate screening upon entry to and/or exit from detention (326). International law and guidance state that alternatives to detention should be pursued first, and that detention measures should be used only as a last resort, used for the minimum time necessary, and applied where they have a legitimate purpose and have been determined to be both necessary and proportionate in each individual case (311,327).

2.11.3 Housing barriers and solutions

The barriers faced by refugee and migrant populations to obtaining safe and secure housing vary extensively, depending on their residential settings. Syrian refugees in Tunisia reported major obstacles to securing good-quality housing including high prices and the availability of only basic accommodation with poor hygiene (328,329). In Jordan, competition for housing and jobs was a main source of tension between Syrian refugees and local communities, as Syrians benefited from a housing subsidy that affected real estate prices (329,330). Among migrant workers in Thailand, living far from work increased fear of both thieves and the police, leading migrants to live closer to their workplaces and in social networks with family and relatives (331).

Some host countries have instituted a variety of housing programmes for refugee and migrant populations that differ by region, migratory status and scope. In the WHO European Region, beneficiaries of international protection may have access to a range of housing accommodation, including public social housing and private accommodation. Programmes such as the Welcome Home programme in Warsaw, Poland, aim to improve access to affordable accommodation by offering rents below market prices. Others, such as the Leverkusen Model of refugee housing in Germany, include support measures, such as information services and assistance in finding accommodation, implemented by local public administrations or complemented by nongovernmental organization (NGO) initiatives. In some cases, cities have rehabilitated buildings, including vacant properties, and made them available to refugees and migrants, as exemplified by the Vilafranca Inclusion programme in Spain (332).

In the WHO Western Pacific Region, thousands of low-skilled migrant workers employed in the construction and marine industries and in various other low-wage sectors in Singapore, live in dormitories, the largest of which have common and shared areas (e.g. recreational facilities, grocery stores and other services). However, such conditions have made migrant workers more vulnerable to infectious diseases, particularly COVID-19 (333). In the WHO South-East Asia Region, many Timorese refugees in the East Nusa Tenggara province of Indonesia continue to live in refugee camps despite various housing aid programmes, citing a better livelihood in the camps and a preference for remaining within their communities (334).

2.12 Food and nutrition

- Food insecurity is a major issue among refugees and migrants, and successful interventions must take local and cultural factors into account.
- When faced with food insecurity, refugees and migrants adopt coping strategies that include skipping meals, borrowing money for food or changing their eating patterns.

Some countries and international organizations have dealt with food insecurity with public health interventions, such as increasing food ration coverage, distributing fortified blended foods, or supporting local home gardens or community kitchens. Food insecurity is a major issue for refugee and migrant populations and may lead to negative physical and mental health outcomes. While different types of migrants face varied food and nutrition-related health impacts, the following section focuses on forcibly displaced populations. Nutritional programmes and food security interventions are crucial for mobile populations, but must take into account the local and cultural context if they are to succeed.

Refugee and migrant populations in several WHO regions have experienced high levels of food insecurity and adopted a variety of coping strategies in response, including skipping meals and borrowing money for food (335–337). Among female asylum seekers and refugees in Durban, South Africa, 92% were found to be food insecure, leading many to reduce their food intake or change the types of food they consumed (336). In the WHO Eastern Mediterranean Region, one fifth of refugees in Egypt could not meet their basic food needs, citing unemployment

as a major barrier to food security, and one in three migrants living in Libya reported inadequate food consumption (338,339). Afghan refugees were significantly affected: 88.7% of those living in Iran reported food insecurity, and many Afghan refugee families in Pakistan experienced food insecurity, regardless of the duration of their stay (340).

A comprehensive food security and vulnerability assessment conducted in Jordan showed variation across refugee groups by nationality (341). Among the groups assessed, 24% of refugees from Sudan experienced food insecurity, followed by 23% of Somali refugees, 15% of Yemeni refugees and 9% of Iraqi refugees. Reasons for food insecurity among these groups included high food expenditure shares, the use of emergency

livelihood-based coping strategies to meet basic food needs and limited access to food. Fluctuations in food security have occurred, particularly among Syrian refugees. Food security among registered Syrian refugees has declined in recent years: only 20% of households living outside camps were reported as food secure in 2018 compared with 28% in 2016 (341). Despite food consumption scores remaining stable, food expenditure shares and the use of livelihood-based coping strategies have both increased, contributing to the overall decline of food security among Syrian refugees in Jordan from 2016 to 2018. Further studies in Lebanon, South Africa and Uganda highlighted the relationship between food insecurity and negative health outcomes, including disease-related disability, depression and anxiety (342–344).



A child is screened for malnutrition using a mid-upper arm circumference (MUAC) tape at a nutrition stabilization centre in Abu Shouk IDP camp in North Darfur. © WHO / Lindsay Mackenzie

Even in high-income countries, refugees and migrants may experience food insecurity. In the WHO European Region, refugees and migrants with financial limitations may be less able to acquire food and may face disruption of food intake or eating patterns. They may also face sociocultural challenges in the host country, including obstacles to cooking meals in a new setting (345–350). Among asylum seekers in Norway, 93% were food insecure, with many reporting economic constraints and limited resources (351). In the Republic of Korea, refugees from the Democratic People's Republic of Korea reported significantly lower food security and skipped meals three times more frequently than their host country counterparts (352).

A study of migrants in transit through Mexico found that 74% experienced some degree of food insecurity, ranging from having only one meal to no food at all during one or several consecutive 24-h periods (353). Factors associated with the severity of food insecurity included more days in active transit, more severe illness affecting mobility or the illness of a travel companion during the previous 2 weeks. The study predicted illness by a pre-migration diagnosis of chronic disease.

2.12.1 Food assistance

Some host countries and local and international partner organizations have introduced a variety of interventions to address high levels of food insecurity among refugees and migrants. In Cox's Bazar, Bangladesh, increased coverage of food rations, the distribution of fortified blended foods, access to micronutrient powders and other public health interventions improved the nutritional status of Rohingya refugee children (354). In northern Uganda, an income-generating project involving home gardens and increased vegetable production showed that participating refugees were twice as

Refugee and migrant populations in several WHO regions have experienced high levels of food insecurity and adopted a variety of coping strategies in response, including skipping meals and borrowing money for food.

likely to consume vegetables as the refugee comparison group (355).

Community kitchens (also known as healthy kitchens) have been promoted as an intergenerational public health intervention in Lebanon for populations from occupied Palestinian territory, including east Jerusalem. Adapted to the cultural context, women prepare subsidized, healthy traditional food in community kitchens for school-aged children attending UNRWA schools. Positive outcomes for participating families included increased spending on food and clothing and reductions in food insecurity (356,357).

2.13 Summary

It is now clear that many, often interconnected, factors affect the health of refugees and migrants and the health of nearby communities, either by undermining or improving it.

Some of these individual characteristics, such as sex and gender, are cross-cutting and affect many of the other challenges faced by refugees and migrants. There is clear evidence that

gender inequality fuels health risks for women and girls around the world during different phases of displacement and migration. Although less recognized, men and boys also face sexual violence as well as the additional dangers of working in high-risk sectors. The vulnerabilities of LGBTQI+ and gender-diverse refugees and migrants are exacerbated by cultural taboos and discrimination. Finally, many older migrants and refugees face particular challenges and needs, but these are often underreported or ignored.

The effects of social and economic determinants are more specific. For example, lower levels of education are associated with poorer health outcomes, while higher levels of education can improve livelihoods. A lack of health literacy can prevent refugees and migrants from seeking care or following health-related instructions, but appropriate strategies – linguistic support, sensitivity to cultural differences and consideration of the needs of these populations – have been proven to work. Income and social status also play a role in migrant health, since a lack of resources can affect when and if refugees and migrants receive health care. Their migratory status often excludes them from social insurance schemes, while their legal status or fear of deportation may increase their vulnerability to health problems.

Environmental determinants that negatively influence the health of refugees and migrants include poor air quality, which can impair respiratory health; WASH issues such as contaminated water in camps, or situations in which hygiene is compromised; poor housing and living conditions, such as poor heating or overcrowding, which can contribute to the spread of communicable diseases, or inhumane conditions and legal uncertainty during immigration detention; and food insecurity, which may provoke unhealthy coping strategies, such as missing meals.

Displacement and migration are major determinants of health for refugees and migrants. Given identical health conditions, a migrant will not only be more vulnerable to health issues than a non-migrant but will also face greater barriers to accessing health care.

References

1. Davies A, Basten A, Frattini C. Migration: a social determinant of the health of migrants. Geneva: International Organization for Migration; 2009 (<https://migrationhealthresearch.iom.int/migration-social-determinant-health-migrants>, accessed 5 April 2022).
2. Fleischman Y, Willen SS, Davidovitch N, Mor Z. Migration as a social determinant of health for irregular migrants: Israel as case study. *Soc Sci Med*. 2015;147:89–97. doi:10.1016/j.socscimed.2015.10.046.
3. Bircher J, Kuruvilla S. Defining health by addressing individual, social, and environmental determinants: new opportunities for health care and public health. *J Public Health Policy*. 2014;35(3):363–86. doi:10.1057/jphp.2014.19.
4. Resolution WHA74.16. Social determinants of health. In: Seventy-fourth World Health Assembly, Geneva, 24 May–1 June 2021. Resolutions and decisions, annexes. Geneva: World Health Organization; 2021:60–3 (WHA74/2021/REC/1; https://apps.who.int/gb/ebwha/pdf_files/WHA74-REC1/A74_REC1-en.pdf, accessed 2 July 2022).
5. Strategy for integrating gender analysis and actions into the work of WHO. Geneva: World Health Organization; 2009 (<https://apps.who.int/iris/handle/10665/69857>, accessed 5 April 2022).
6. Pega F, Veale JF. The case for the World Health Organization's Commission on Social Determinants of Health to address gender identity. *Am J Public Health*. 2015;105(3):e58–62. doi:10.2105/AJPH.2014.302373.
7. Stark L, Seff I, Weber A, Darmstadt GL. Applying a gender lens to global health and well-being: framing a Journal of Global Health special collection. *J Glob Health*. 2020;10(1):010103. doi:10.7189/jogh.10.01013.
8. Redden K, Safarian J, Schoenborn C, Shortall C, Gagnon AJ. Interventions to support international migrant women's reproductive health in western-receiving countries: a systematic review and meta-analysis. *Health Equity*. 2021;5(1):356–72. doi:10.1089/heq.2020.0115.
9. Shorey S, Ng ED, Downe S. Cultural competence and experiences of maternity health care providers on care for migrant women: a qualitative meta-synthesis. *Birth*. 2021;48(4):458–69. doi:10.1111/birt.12581.
10. Gender analysis: the situation of refugees and migrants in Greece. Oxford: Oxfam; 2016 (https://www-cdn.oxfam.org/s3fs-public/file_attachments/oxfam_gender_analysis_september2016_webpage.pdf, accessed 5 April 2022).
11. Scheibelhofer P. "It won't work without ugly pictures": images of othered masculinities and the legitimisation of restrictive refugee-politics in Austria. *NORMA*. 2017;12(2):96–111. doi:10.1080/18902138.2017.1341222.
12. Qureshi SA, Straiton M, Gele AA. Associations of socio-demographic factors with adiposity among immigrants in Norway: a secondary data analysis. *BMC Public Health*. 2020;20(1):772. doi:10.1186/s12889-020-08918-9.
13. Persson G, Mahmud AJ, Hansson EE, Strandberg EL. Somali women's view of physical activity – a focus group study. *BMC Womens Health*. 2014;14:129. doi:10.1186/1472-6874-14-129.
14. Balcilar M. Health status survey of Syrian refugees in Turkey: non-communicable disease risk factor surveillance among Syrian refugees living in Turkey. Ankara: Disaster and Emergency Management (AFAD); 2016 (https://hsgm.saglik.gov.tr/depo/birimler/kronik-hastaliklar-engelli-db/hastaliklar/kronik_havayolu/raporlar/HEALT_STATUS_SURVEY_of_SYRIAN_REFUGEES_in_TURKEY.pdf, accessed 5 April 2022).
15. Alzubaidi H, McNarmara K, Kilmartin GM, Kilmartin JF, Marriott J. The relationships between illness and treatment perceptions with adherence to diabetes self-care: a comparison between Arabic-speaking migrants and Caucasian English-speaking patients. *Diabetes Res Clin Pract*. 2015;110(2):208–17. doi:10.1016/j.diabres.2015.08.006.
16. El Masri A, Kolt GS, George ES. The perceptions, barriers and enablers to physical activity and minimising sedentary behaviour among Arab-Australian adults aged 35–64 years. *Health Promot J Aust*. 2021;32(2):312–21. doi:10.1002/hpja.345.
17. Cavazzoni F, Fiorini A, Shoman H, Diab M, Veronese G. The role of gender and living context in shaping Palestinian children's agency and well-being. *Gend Place Cult*. 2022;29(2):222–47. doi:10.1080/0966369X.2021.1882954.
18. Aung TNN, Shirayama Y, Moolphate S, Lorga T, Yuasa M, Aung MN. Acculturation and its effects on health risk behaviors among Myanmar migrant workers: a cross-sectional survey in Chiang Mai, northern Thailand. *Int J Environ Res Public Health*. 2020;17(14):5108. doi:10.3390/ijerph17145108.
19. Rahman MT. Rohingya crisis in Bangladesh and health sector challenges. *Anwer Khan Mod Med Coll J*. 2018;9(1):3–4. doi:10.3329/akmmcj.v9i1.35814.
20. Joarder T, Sutradhar I, Hasan MI, Bulbul MMI. A record review on the health status of Rohingya refugees in Bangladesh. *Cureus*. 2020;12(8):e9753. doi:10.7759/cureus.9753.
21. Im H, Swan LE, Warsame AH, Isse MM. Risk and protective factors for comorbidity of PTSD, depression, and anxiety among Somali refugees in Kenya. *Int J Soc Psychiatry*. 2022;68(1):134–46. doi:10.1177/0020764020978685.
22. Usta J, Masterson AR, Farver JM. Violence against displaced Syrian women in Lebanon. *J Interpers Violence*. 2019;34(18):3767–79. doi:10.1177/0886260516670881.

23. Nisrane BL, Ossewaarde R, Need A. The exploitation narratives and coping strategies of Ethiopian women return migrants from the Arabian Gulf. *Gend Place Cult.* 2020;27(4):568–86. doi:10.1080/0966369X.2019.1611545.
24. Oliveira C, Keygnaert I, Martins MRO, Dias S. Assessing reported cases of sexual and gender-based violence, causes and preventive strategies, in European asylum reception facilities. *Glob Health.* 2018;14(1):48. doi:10.1186/s12992-018-0365-6.
25. Allen R, Beise J, Blume S, Lindt N, Moussa N, Pandolfelli L et al. Uncertain pathways: how gender shapes the experiences of children on the move. New York: United Nations Children's Fund; 2021 (<https://data.unicef.org/resources/uncertain-pathways-how-gender-shapes-the-experiences-of-children-on-the-move/>, accessed 5 April 2022).
26. Kim Y, Son I, Wie D, Muntaner C, Kim H, Kim S-S. Don't ask for fair treatment? A gender analysis of ethnic discrimination, response to discrimination, and self-rated health among marriage migrants in South Korea. *Int J Equity Health.* 2016;15(1):112. doi:10.1186/s12939-016-0396-7.
27. Thao NTP. Different effects of acculturative stress and family life stress on depressive symptoms among married Vietnamese immigrant women in South Korea. *Asian Soc Work Policy Rev.* 2016;10(2):225–36. doi:10.1111/aswp.12092.
28. Lee H, Seo S, Kang R, Kim Y, Hyun H-K. Increasing access to oral healthcare for marriage-immigrant women in South Korea: programme design to policy recommendation. *Int Dent J.* 2019;69(5):354–60. doi:10.1111/idj.12479.
29. Adhikari P, Keen S, van Teijlingen E. Workplace accidents among Nepali male workers in the Middle East and Malaysia: a qualitative study. *J Immigr Minor Health.* 2019;21(5):1115–22. doi:10.1007/s10903-018-0801-y.
30. Bailey R. Health care management in Australia's and New Zealand's seasonal worker schemes. Canberra: Department of Pacific Affairs (ANU); 2020 (DPA Working Paper no. 2020/2; <https://apo.org.au/node/302960>, accessed 5 April 2022).
31. Öztaş D, Kurt B, Koç A, Akbaba M. Living conditions, access to healthcare services, and occupational health and safety conditions of migrant seasonal agricultural workers in the Çukurova region. *J Agromedicine.* 2018;23(3):262–9. doi:10.1080/1059924X.2018.1470048.
32. Labao HC, Faller EM, Bacayo MFD. "Aches and pains" of Filipino migrant workers in Malaysia: a profile of work-related musculoskeletal disorders. *Ann Glob Health.* 2018;84(3):474–80. doi:10.29024/aogh.2331.
33. Ghaddar A, Khandaqji S, Ghattas J. Justifying abuse of women migrant domestic workers in Lebanon: the opinion of recruitment agencies. *Gac Sanit.* 2020;34(5):493–9. doi:10.1016/j.gaceta.2018.11.001.
34. Mendoza NB, Mordeno IG, Latkin CA, Hall BJ. Evidence of the paradoxical effect of social network support: a study among Filipino domestic workers in China. *Psychiatry Res.* 2017;255:263–71. doi:10.1016/j.psychres.2017.05.037.
35. Arsenijević J, Burtscher D, Ponthieu A, Severy N, Contenta A, Moissaing S et al. "I feel like I am less than other people": health-related vulnerabilities of male migrants travelling alone on their journey to Europe. *Soc Sci Med.* 2018;209:86–94. doi:10.1016/j.socscimed.2018.05.038.
36. Mundy SS, Foss SLW, Poulsen S, Hjorthøj C, Carlsson J. Sex differences in trauma exposure and symptomatology in trauma-affected refugees. *Psychiatry Res.* 2020;293:113445. doi:10.1016/j.psychres.2020.113445.
37. Nelson N, Portnoy PS, Kuppa JO, Rocroi I, Tatel E, Diaz A et al. Patterns of torture among forcibly displaced Eritreans in California: a cross-sectional study. *Torture.* 2021;31(1):53–63. doi:10.7146/torture.v31i1.121786.
38. Garoff F, Tinghög P, Suvisaari J, Lilja E, Castaneda AE. Iranian and Iraqi torture survivors in Finland and Sweden: findings from two population-based studies. *Eur J Public Health.* 2021;31(3):493–8. doi:10.1093/eurpub/ckab037.
39. Clément R, Lebossé D, Barrios L, Rodat O. Asylum seekers alleging torture in their countries: evaluation of a French center. *J Forensic Leg Med.* 2017;46:24–9. doi:10.1016/j.jflm.2016.12.011.
40. Liebling H, Barrett H, Artz L. South Sudanese refugee survivors of sexual and gender-based violence and torture: health and justice service responses in northern Uganda. *Int J Environ Res Public Health.* 2020;17(5):1685. doi:10.3390/ijerph17051685.
41. Reques L, Aranda-Fernandez E, Rolland C, Grippon A, Fallet N, Reboul C et al. Episodes of violence suffered by migrants transiting through Libya: a cross-sectional study in "Médecins du Monde's" reception and healthcare centre in Seine-Saint-Denis, France. *Confl Health.* 2020;14(1):12. doi:10.1186/s13031-020-0256-3.
42. Deps P, Collin SM, Aborghetti HP, Charlier P. Evidence of physical violence and torture in refugees and migrants seeking asylum in France. *J Forensic Leg Med.* 2021;77:102104. doi:10.1016/j.jflm.2020.102104.
43. Leyva-Flores R, Infante C, Gutierrez JP, Quintino-Perez F, Gómez-Saldivar M, Torres-Robles C. Migrants in transit through Mexico to the US: experiences with violence and related factors, 2009–2015. *PLOS One.* 2019;14(8):e0220775. doi:10.1371/journal.pone.0220775.
44. Chynoweth SK, Buscher D, Martin S, Zwi AB. Characteristics and impacts of sexual violence against men and boys in conflict and displacement: a multicountry exploratory study. *J Interpers Violence.* 2020;38(9–10):NP73470–501. doi:10.1177/0886260520967132.

45. Chynoweth SK, Buscher D, Martin S, Zwi AB. A social ecological approach to understanding service utilization barriers among male survivors of sexual violence in three refugee settings: a qualitative exploratory study. *Confl Health*. 2020;14(1):43. doi:10.1186/s13031-020-00288-8.
46. Belanteri RA, Hinderaker SG, Wilkinson E, Episkopou M, Timire C, De Plecker E et al. Sexual violence against migrants and asylum seekers. The experience of the MSF clinic on Lesbos Island, Greece. *PLOS One*. 2020;15(9):e0239187. doi:10.1371/journal.pone.0239187.
47. Negi NJ, Prickett JC, Overdorff AM, Roberts J, Furman R. Return-migration to Mexico and the gendered transnational migration process. *Psychol Men Masc*. 2018;19(3):385–91. doi:10.1037/men0000106.
48. Affleck W, Thamocharampillai U, Jeyakumar J, Whitley R. "If one does not fulfil his duties, he must not be a man": masculinity, mental health and resilience amongst Sri Lankan Tamil refugee men in Canada. *Cult Med Psychiatry*. 2018;42(4):840–61. doi:10.1007/s11013-018-9592-9.
49. Kukreja R. Recouping masculinity: understanding the links between macho masculinity and self-exploitation among undocumented South Asian male migrants in Greece. *Geoforum*. 2021;122(3):164–73. doi:10.1016/j.geoforum.2021.04.009.
50. Improving the health and well-being of LGBTIQ+ people [website]. Geneva: World Health Organization; 2021 (<https://www.who.int/activities/improving-the-health-and-well-being-of-lgbtqi-people>, accessed 5 April 2022).
51. Broqua C, Laborde-Balen G, Menetrier A, Bangoura D. Queer necropolitics of asylum: Senegalese refugees facing HIV in Mauritania. *Glob Public Health*. 2021;16(5):746–62. doi:10.1080/17441692.2020.1851744.
52. Mudarikwa M, Gleckman-Krut M, Payne A-L, Camminga B, Marnell J. LGBTI+ asylum seekers in South Africa: a review of refugee status denials involving sexual orientation & gender identity. Johannesburg: Legal Resources Centre; 2021 (<https://lrc.org.za/wp-content/uploads/LGBTI-ASYLUM-REPORT-RFS.pdf>, accessed 5 April 2022).
53. Alessi EJ, Kahn S, Giwa S, Cheung S. "Those tablets, they are finding an empty stomach": a qualitative investigation of HIV risk among sexual and gender minority migrants in Cape Town, South Africa. *Ethn Health*. 2020;27(1):1–17. doi:10.1080/13557858.2020.1817342.
54. Levison JH, Bogart LM, Khan IF, Mejia D, Amaro H, Alegría M et al. "Where it falls apart": barriers to retention in HIV care in Latino immigrants and migrants. *AIDS Patient Care STDS*. 2017;31(9):394–405. doi:10.1089/apc.2017.0084.
55. Pachankis JE, Hatzenbuehler ML, Berg RC, Fernández-Dávila P, Mirandola M, Marcus U et al. Anti-LGBT and anti-immigrant structural stigma: an intersectional analysis of sexual minority men's HIV risk when migrating to or within Europe. *J Acquir Immune Defic Syndr*. 2017;76(4):356–66. doi:10.1097/QAI.0000000000001519.
56. Nieves-Lugo K, Barnett A, Pinho V, Reisen C, Poppen P, Zea MC. Sexual migration and HIV risk in a sample of Brazilian, Colombian and Dominican immigrant MSM living in New York City. *J Immigr Minor Health*. 2019;21(1):115–22. doi:10.1007/s10903-018-0716-7.
57. Golembe J, Leyendecker B, Maalej N, Gundlach A, Busch J. Experiences of minority stress and mental health burdens of newly arrived LGBTQ* refugees in Germany. *Sex Res Soc Policy*. 2021;18(4):1049–59. doi:10.1007/s13178-020-00508-z.
58. Kahn S, Alessi EJ, Kim H, Woolner L, Olivieri CJ. Facilitating mental health support for LGBT forced migrants: a qualitative inquiry. *J Couns Dev*. 2018;96(3):316–26. doi:10.1002/jcad.12205.
59. Fox SD, Griffin RH, Pachankis JE. Minority stress, social integration, and the mental health needs of LGBTQ asylum seekers in North America. *Soc Sci Med*. 2020;246:112727. doi:10.1016/j.socscimed.2019.112727.
60. Hopkinson RA, Keatley E, Glaeser E, Erickson-Schroth L, Fattal O, Nicholson Sullivan M. Persecution experiences and mental health of LGBT asylum seekers. *J Homosex*. 2017;64(12):1650–66. doi:10.1080/00918369.2016.1253392.
61. Kahn S, Alessi EJ. Coming out under the gun: exploring the psychological dimensions of seeking refugee status for LGBT claimants in Canada. *J Refug Stud*. 2018;31(1):22–41. doi:10.1093/jrs/fex019.
62. Alessi EJ, Kahn S, Greenfield B, Woolner L, Manning D. A qualitative exploration of the integration experiences of LGBTQ refugees who fled from the Middle East, North Africa, and Central and South Asia to Austria and the Netherlands. *Sex Res Soc Policy*. 2020;17(1):13–26. doi:10.1007/s13178-018-0364-7.
63. Kostenius C, Hertting K, Pelters P, Lindgren E-C. From hell to heaven? Lived experiences of LGBTQ migrants in relation to health and their reflections on the future. *Cult Health Sex*. 2021;20:1–13. doi:10.1080/13691058.2021.1983020.
64. Logie CH, Lacombe-Duncan A, Lee-Foon N, Ryan S, Ramsay H. "It's for us – newcomers, LGBTQ persons, and HIV-positive persons. You feel free to be": a qualitative study exploring social support group participation among African and Caribbean lesbian, gay, bisexual and transgender newcomers and refugees in Toronto, Canada. *BMC Int Health Hum Rights*. 2016;16(1):18. doi:10.1186/s12914-016-0092-0.
65. Kahn S, Alessi E, Woolner L, Kim H, Olivieri C. Promoting the wellbeing of lesbian, gay, bisexual and transgender forced migrants in Canada: providers' perspectives. *Cult Health Sex*. 2017;19(10):1165–79. doi:10.1080/13691058.2017.1298843.
66. Clark K, Pachankis J, Khoshnood K, Bränström R, Seal D, Khoury D et al. Stigma, displacement stressors and psychiatric morbidity among displaced Syrian men who have sex with men (MSM) and transgender women: a cross-sectional study in Lebanon. *BMJ Open*. 2021;11(5):e046996. doi:10.1136/bmjopen-2020-046996.

67. Tohme J, Egan JE, Friedman MR, Stall R. Psycho-social correlates of condom use and HIV testing among MSM refugees in Beirut, Lebanon. *AIDS Behav.* 2016;20(suppl 3):417–25. doi:10.1007/s10461-016-1498-3.
68. Tohme J, Egan JE, Stall R, Wagner G, Mokhbat J. HIV prevalence and demographic determinants of unprotected anal sex and HIV testing among male refugees who have sex with men in Beirut, Lebanon. *AIDS Behav.* 2016;20(suppl 3):408–16. doi:10.1007/s10461-016-1484-9.
69. Mutchler MG, McDavitt BW, Tran TN, Khoury CE, Ballan E, Tohme J et al. This is who we are: building community for HIV prevention with young gay and bisexual men in Beirut, Lebanon. *Cult Health Sex.* 2018;20(6):690–703. doi:10.1080/13691058.2017.1371334.
70. Gowin M, Taylor EL, Dunnington J, Alshuwaiyer G, Cheney MK. Needs of a silent minority: Mexican transgender asylum seekers. *Health Promot Pract.* 2017;18(3):332–40. doi:10.1177/1524839917692750.
71. Cheney MK, Gowin MJ, Taylor EL, Frey M, Dunnington J, Alshuwaiyer G et al. Living outside the gender box in Mexico: testimony of transgender Mexican asylum seekers. *Am J Public Health.* 2017;107(10):1646–52. doi:10.2105/AJPH.2017.303961.
72. Rosati F, Coletta V, Pistella J, Scandurra C, Laghi F, Baiocco R. Experiences of life and intersectionality of transgender refugees living in Italy: a qualitative approach. *Int J Environ Res Public Health.* 2021;18(23):12385. doi:10.3390/ijerph182312385.
73. Okada T. Gender performance and migration experience of Filipino transgender women entertainers in Japan. *Int J Transgender Health.* 2022;23(1-2):24–35. doi:10.1080/26895269.2020.1838390.
74. Okada T. Negotiations in the gendered experiences of transpinay entertainers in Japan. *J Contemp East Asia.* 2020 Dec 31;19(2):40–60. doi:10.17477/jcea.2020.19.2.040.
75. Farrington M. Social and feminist design in emergency contexts: the Women's Social Architecture Project, Cox's Bazar, Bangladesh. *Gend Dev.* 2019;27(2):295–315. doi:10.1080/13552074.2019.1626593.
76. Thuita W, Conn C, Wilson K. The role of marginalised women in sanitation initiatives: Somali women in northern Kenya. *Dev Pract.* 2017;27(1):16–25. doi:10.1080/09614524.2017.1256951.
77. Soeiro RE, Rocha L, Surita FG, Bahamondes L, Costa ML. Period poverty: menstrual health hygiene issues among adolescent and young Venezuelan migrant women at the northwestern border of Brazil. *Reprod Health.* 2021;18(1):238. doi:10.1186/s12978-021-01285-7
78. World report on ageing and health. Geneva: World Health Organization; 2015 (<https://apps.who.int/iris/handle/10665/186463>, accessed 28 April 2022).
79. Rudnicka E, Napierała P, Podfigurna A, Męczekalski B, Smolarczyk R, Grymowicz M. The World Health Organization (WHO) approach to healthy ageing. *Maturitas.* 2020;139:6–11. doi:10.1016/j.maturitas.2020.05.018.
80. Resolution A/RES/75/131. United Nations decade of healthy ageing (2021–2030). In Seventy-fifth session, United Nations General Assembly, New York, 21 December 2020. New York: United Nations; 2020 (<https://digitallibrary.un.org/record/3896348?ln=en>, accessed 28 April 2022).
81. McGivern V, Bluestone K, Lilly D. If not now, when? Keeping promises to older people affected by humanitarian crises. London: HelpAge International; 2020 (<https://www.ageinternational.org.uk/globalassets/documents/reports/2020/if-not-now-when-report.pdf>, accessed 11 April 2022).
82. Health of older refugees and migrants, 2018. Copenhagen: WHO Regional Office for Europe; 2018 (https://www.euro.who.int/__data/assets/pdf_file/0003/386562/elderly-eng.pdf, accessed 28 April 2022).
83. International Organization for Migration, United Nations Children's Fund. Harrowing journeys: children and youth on the move across the Mediterranean Sea, at risk of trafficking and exploitation. Geneva: International Organization for Migration; 2017 (<https://publications.iom.int/books/harrowing-journeys-children-and-youth-move-across-mediterranean-sea-risk-trafficking-and>, accessed 21 June 2022).
84. Making the invisible visible: the identification of unaccompanied and separated girls in Bulgaria, Greece, Italy and Serbia. New York: United Nations Children's Fund; 2020 (<https://www.unicef.org/eca/media/10676/file/This%20Analysis.pdf>, accessed 21 June 2022).
85. Patel SG, Bouche V, Martinez W, Barajas K, Garcia A, Sztainer M, Hawkins K. "Se extraña todo:" family separation and reunification experiences among unaccompanied adolescent migrants from Central America. *New Dir Child Adolesc Dev.* 2021(176):227–44. doi:10.1002/cad.20404.
86. Doering-White J. The shifting boundaries of "best interest": sheltering unaccompanied Central American minors in transit through Mexico. *Child Youth Serv Rev.* 2018;92:39–47. doi:10.1016/j.childyouth.2018.01.009.
87. Uprooted in Central America and Mexico: migrant and refugee children face a vicious cycle of hardship and danger. New York: United Nations Children's Fund 2018 (<https://www.unicef.org/lac/en/reports/uprooted-central-america-and-mexico>, accessed 21 June 2022).
88. Age assessment for children in migration: a human rights-based approach. Brussels: Council of Europe; 2019 (<https://rm.coe.int/ageassessmentchildrenmigration/168099529f>, accessed 21 June 2022).

89. Age assessment and fingerprinting of children in asylum procedures: minimum age requirements concerning children's rights in the EU. Vienna: European Union Agency for Fundamental Rights; 2018. (https://fra.europa.eu/sites/default/files/fra_uploads/fra-2018-minimum-age-asylum-procedures_en.pdf, accessed 21 June 2022).
90. EASO practical guide on age assessment, second edition. Valletta: European Asylum Support Office; 2018 (<https://euaa.europa.eu/sites/default/files/easo-practical-guide-on-age-assessment-v3-2018.pdf>, accessed 21 June 2022).
91. Jakobsen M, DeMott MA, Wentzel-Larsen T, Heir T. The impact of the asylum process on mental health: a longitudinal study of unaccompanied refugee minors in Norway. *BMJ Open*. 2017;7(6):e015157. doi:10.1136/bmjopen-2016-015157.
92. Coulter K, Sabo S, Martínez D, Chisholm K, Gonzalez K, Bass Zavala S et al. A study and analysis of the treatment of Mexican unaccompanied minors by customs and border protection. *J Migr Hum Secur*. 2020;8(2):96–110. doi:10.1177/2331502420915898.
93. Ehntholt KA, Trickey D, Harris Hendriks J, Chambers H, Scott M, Yule W. Mental health of unaccompanied asylum-seeking adolescents previously held in British detention centres. *Clin Child Psychol Psychiatry*. 2018;23(2):238–57. doi:10.1177/1359104518758839.
94. Field handbook on unaccompanied and separated children. Alliance for Child Protection in Humanitarian Action; 2016 (<https://www.alliancecpa.org/fr/node/2043>, accessed 21 June 2022).
95. Zijlstra AE, Menninga MC, Van Os EC, Kalverboer ME. They ask for protection: an exploratory study into experiences with violence among unaccompanied refugee children in Dutch reception facilities. *Child Abuse Neglect*. 2020;103:104442. doi:10.1016/j.chiabu.2020.104442.
96. Arega NT. Posttraumatic stress among Eritrean unaccompanied refugee minors in Ethiopia. *Int J Migr Health Soc Care*. 2020;17(1):1–15. doi:10.1108/IJMHS-02-2020-0016.
97. Badri A, Eltayeb S, Mohamed M, Verdelli H. Mental health and resilience status of Eritrean unaccompanied refugee minors in Sudan. *Child Youth Serv Rev*. 2020;116:105088. doi:10.1016/j.childyouth.2020.105088.
98. Emedo M, Habeeb S, Joyce M, Anderson S, Lorek A. P4 Adverse experiences of unaccompanied asylum seeking children and the impact on their emotional wellbeing and mental health needs. *Arch Dis Child*. 2018;103(suppl 1):A2. doi:10.1136/archdischild-2018-rcpch.4.
99. Solberg Ø, Nissen A, Vaez M, Cauley P, Eriksson AK, Saboonchi F. Children at risk: a nation-wide, cross-sectional study examining post-traumatic stress symptoms in refugee minors from Syria, Iraq and Afghanistan resettled in Sweden between 2014 and 2018. *Confl Health*. 2020;14(1):67. doi:10.1186/s13031-020-00311-y.
100. Bjerneld M, Ismail N, Puthooppambal SJ. Experiences and reflections of Somali unaccompanied girls on their first years in Sweden: a follow-up study after two decades. *Int J Migr Health Soc Care*. 2018;14(3):305–17. doi:10.1108/IJMHS-03-2018-0018.
101. Bjerneld M, Puthooppambal SJ. Companions to unaccompanied asylum-seeking children in Sweden—experiences of Swedish families. *International Journal of Migration, Health and Social Care*. 2022;18(2):179–91. doi:10.1108/IJMHS-09-2021-0088.
102. Zijlstra AE, Menninga MC, Van Os EC, Rip JA, Knorth EJ, Kalverboer ME. "There is no mother to take care of you". Views of unaccompanied children on healthcare, their mental health and rearing environment. *Resid Treat Child Youth*. 2019;36(2):118–36. doi:10.1080/0886571X.2018.1559118.
103. Been SK, van de Vijver DAMC, Nieuwkerk PT, Is B, Stutterheim SE, Bos AER et al. Risk factors for non-adherence to cART in immigrants with HIV living in the Netherlands: results from the Rotterdam Adherence (ROAD) project. *PLOS One*. 2016;11(10):e0162800. doi:10.1371/journal.pone.0162800.
104. Chowdhury M, Serieux J. Education and the sustainability of immigrant health: Canadian evidence. *Can Public Policy*. 2018;44(3):226–40. doi:10.3138/cpp.2017-072.
105. Baltazar CS, DeLima YV, Ricardo H, Botão C, Langa DC, da Costa P et al. HIV prevalence and TB in migrant miners communities of origin in Gaza Province, Mozambique: the need for increasing awareness and knowledge. *PLOS One*. 2020;15(4):e0231303. doi:10.1371/journal.pone.0231303.
106. Lebenbaum M, Stukel TA, Saunders NR, Lu H, Urquia M, Kurdyak P et al. Association of source country gender inequality with experiencing assault and poor mental health among young female immigrants to Ontario, Canada. *BMC Public Health*. 2021;21(1):739. doi:10.1186/s12889-021-10720-0.
107. Ludwig A, Miani C, Breckenkamp J, Sauzet O, Borde T, Doyle I-M et al. Are social status and migration background associated with utilization of non-medical antenatal care? Analyses from two German studies. *Matern Child Health J*. 2020;24(7):943–52. doi:10.1007/s10995-020-02937-z.
108. Amini-Rarani M, Mansouri A, Nosratabadi M. Decomposing educational inequality in maternal mortality in Iran. *Women Health*. 2021;61(3):244–53. doi:10.1080/03630242.2020.1856294.
109. Suphanchaimat R, Sinam P, Phaiyaron M, Pudpong N, Julchoo S, Kunpeuk W et al. A cross sectional study of unmet need for health services amongst urban refugees and asylum seekers in Thailand in comparison with Thai population, 2019. *Int J Equity Health*. 2020;19(1):205. doi:10.1186/s12939-020-01316-y.

110. Aschale Y, Mengist A, Bitew A, Kassie B, Talie A. Prevalence of malaria and associated risk factors among asymptomatic migrant laborers in West Armachiho District, Northwest Ethiopia. *Res Rep Trop Med*. 2018;9:95–101. doi:10.2147/RTM.S165260.
111. Cheung SY, Phillimore J. Gender and refugee integration: a quantitative analysis of integration and social policy outcomes. *J Soc Policy*. 2017;46(2):211–30. doi:10.1017/S0047279416000775.
112. Downer B, Garcia MA, Saenz J, Markides KS, Wong R. The role of education in the relationship between age of migration to the United States and risk of cognitive impairment among older Mexican Americans. *Res Aging*. 2018;40(5):411–31. doi:10.1177/0164027517701447.
113. Addo J, Agyemang C, de-Graft Aikins A, Beune E, Schulze MB, Danquah I et al. Association between socioeconomic position and the prevalence of type 2 diabetes in Ghanaians in different geographic locations: the RODAM study. *J Epidemiol Community Health*. 2017;71(7):633–9. doi:10.1136/jech-2016-208322.
114. Bhandari D, Ozaki A, Kobashi Y, Higuchi A, Shakya P, Tanimoto T. Cancer information seeking and scanning behavior among Nepalese migrants in Japan and its association with preventive behavior. *PLOS ONE*. 2020;15(6):e0235275. doi:10.1371/journal.pone.0235275.
115. Lepore SJ, Nair RG, Davis SN, Wolf RL, Basch CE, Thomas N et al. Patient and physician factors associated with undisclosed prostate cancer screening in a sample of predominantly immigrant black men. *J Immigr Minor Health*. 2017;19(6):1343–50. doi:10.1007/s10903-016-0468-1.
116. Alawa J, Hamade O, Alayleh A, Fayad L, Khoshnood K. Cancer awareness and barriers to medical treatment among Syrian refugees and Lebanese citizens in Lebanon. *J Cancer Educ*. 2020;35(4):709–17. doi:10.1007/s13187-019-01516-3.
117. Patel H, Sherman SM, Tincello D, Moss EL. Awareness of and attitudes towards cervical cancer prevention among migrant Eastern European women in England. *J Med Screen*. 2020;27(1):40–7. doi:10.1177/0969141319869957.
118. Berens E-M, Mohwinkel L-M, van Eckert S, Reder M, Kolip P, Spallek J. Uptake of gynecological cancer screening and performance of breast self-examination among 50-year-old migrant and non-migrant women in Germany: results of a cross-sectional study (InEMA). *J Immigr Minor Health*. 2019;21(3):674–7. doi:10.1007/s10903-018-0785-7.
119. Lam M, Kwok C, Lee M-J. Prevalence and sociodemographic correlates of routine breast cancer screening practices among migrant-Australian women. *Aust N Z J Public Health*. 2018;42(1):98–103. doi:10.1111/1753-6405.12752.
120. Lee HY, Lee MH, Jang YJ, Lee DK. Breast cancer screening disparity among Korean American immigrant women in Midwest. *Asian Pac J Cancer Prev*. 2017;18(10):2663–7. doi:10.22034/APJCP.2017.18.10.2663.
121. Riza E, Karakosta A, Tsiampalis T, Lazarou D, Karachaliou A, Ntelis S et al. Knowledge, attitudes and perceptions about cervical cancer risk, prevention and human papilloma virus (HPV) in vulnerable women in Greece. *Int J Environ Res Public Health*. 2020;17(18):6892. doi:10.3390/ijerph17186892.
122. Poncet L, Panjo H, Ringa V, Andro A. Do vulnerable groups access prevention services? Cervical cancer screening and HIV testing among homeless migrant women in the Paris metropolitan area. *PLOS One*. 2021;16(8):e0255900. doi:10.1371/journal.pone.0255900.
123. Andersen E, Kjellså I, Hjellset VT, Henjum S. Insufficient physical activity level among Sahrawi adults living in a protracted refugee setting. *BMC Public Health*. 2021;21(1):166. doi:10.1186/s12889-021-10217-w.
124. van Nieuwenhuizen B, Zafarmand MH, Beune E, Meeks K, de-Graft Aikins A, Addo J et al. Ideal cardiovascular health among Ghanaian populations in three European countries and rural and urban Ghana: the RODAM study. *Intern Emerg Med*. 2018;13(6):845–56. doi:10.1007/s11739-018-1846-6.
125. Afrifa-Anane E, de-Graft Aikins A, Meeks KAC, Beune E, Addo J, Smeeth L et al. Physical inactivity among Ghanaians in Ghana and Ghanaian migrants in Europe. *Med Sci Sports Exerc*. 2020;52(10):2152–61. doi:10.1249/MSS.0000000000002357.
126. Dryden-Peterson S, Dahya N, Adelman E. Pathways to educational success among refugees: connecting locally and globally situated resources. *Am Educ Res J*. 2017;54(6):1011–47. doi:10.3102/0002831217714321.
127. Kaji A, Parker DM, Chu CS, Thayatkawin W, Suelaor J, Charatruangrongkun R et al. Immunization coverage in migrant school children along the Thailand-Myanmar border. *J Immigr Minor Health*. 2016;18(5):1038–45. doi:10.1007/s10903-015-0294-x.
128. Jamaluddine Z, Choufani J, Masterson AR, Hoteit R, Sahyoun NR, Ghattas H. A community-based school nutrition intervention improves diet diversity and school attendance in Palestinian refugee schoolchildren in Lebanon. *Curr Dev Nutr*. 2020;4(11):nzaa164. doi:10.1093/cdn/nzaa164.
129. Heltne UM, Dybdahl R, Elkhailifa S, Breidlid A. Psychosocial support and emergency education: an explorative study of perceptions among adult stakeholders in Sudan and South Sudan. *Sustainability*. 2020;12(4):1410. doi:10.3390/su12041410.
130. Shaeffer S. Preschool and primary education: Thailand's progress in achieving education for all. In: Fry GW, editor. *Education in Thailand: education in the Asia-Pacific region: issues, concerns and prospects*; vol. 42. Singapore: Springer Singapore; 2018 (http://link.springer.com/10.1007/978-981-10-7857-6_5, accessed 5 April 2022).
131. Ruzibiza Y. "They are a shame to the community ... "stigma, school attendance, solitude and resilience among pregnant teenagers and teenage mothers in Mahama refugee camp, Rwanda. *Glob Public Health*. 2021;16(5):763–74. doi:10.1080/17441692.2020.1751230.

132. Garbern SC, Helal S, Michael S, Turgeon NJ, Bartels S. "It will be a weapon in my hand": the protective potential of education for adolescent Syrian refugee girls in Lebanon. *Refuge Can J Refug*. 2020;36(1):3–13. doi:10.25071/1920-7336.40609.
133. Cabieses B, Chepo M, Oyarte M, Markkula N, Bustos P, Pedrero V et al. Brechas de desigualdad en salud en niños migrantes versus locales en Chile [Health inequality gap in immigrant versus local children in Chile]. *Rev Chil Pediatr*. 2017;88(6):707–16 (in Spanish). doi:10.4067/S0370-41062017000600707.
134. Herzog van Wees S, Fried S, Larsson EC. Arabic speaking migrant parents' perceptions of sex education in Sweden: a qualitative study. *Sex Reprod Healthc*. 2021;28:100596. doi:10.1016/j.srhc.2021.100596.
135. Hattar-Pollara M. Barriers to education of Syrian refugee girls in Jordan: gender-based threats and challenges. *J Nurs Scholarsh*. 2019;51(3):241–51. doi:10.1111/jnu.12480.
136. Knox SE. How they see it: young women's views on early marriage in a post-conflict setting. *Reprod Health Matters*. 2017;25(suppl 1):96–106. doi:10.1080/09688080.2017.1383738.
137. Prodip MA. Health and educational status of Rohingya refugee children in Bangladesh. *J Popul Soc Stud*. 2017;25(2):135–46. doi:10.25133/JPSSv25n2.005.
138. Ro A, Goldberg RE. Post-migration employment changes and health: a dyadic spousal analysis. *Soc Sci Med*. 2017;191:202–11. doi:10.1016/j.socscimed.2017.09.002.
139. Liu X, Bowe SJ, Milner A, Li L, Too LS, LaMontagne AD. Job insecurity: a comparative analysis between migrant and native workers in Australia. *Int J Environ Res Public Health*. 2019;16(21):4159. doi:10.3390/ijerph16214159.
140. Biletta A, Weber T, Vanderleyden J, Brandsma N. How your birthplace affects your workplace [website]. Dublin: European Foundation for the Improvement of Living and Working Conditions; 2019 (<https://www.eurofound.europa.eu/publications/policy-brief/2019/how-your-birthplace-affects-your-workplace>, accessed 5 April 2022).
141. Human mobility, shared opportunities: a review of the 2009 human development report and the way ahead. New York: United Nations Development Programme; 2020 (<https://www.aidsdatahub.org/sites/default/files/resource/undp-iom-human-mobility-shared-opportunities-2021.pdf>, accessed 5 April 2022).
142. Hvidtfeldt C, Schultz-Nielsen ML, Tekin E, Fosgerau M. An estimate of the effect of waiting time in the Danish asylum system on post-resettlement employment among refugees: separating the pure delay effect from the effects of the conditions under which refugees are waiting. *PLOS One*. 2018;13(11):e0206737. doi:10.1371/journal.pone.0206737.
143. Luthra RR. Temporary immigrants in a high-skilled labour market: a study of H-1Bs. *J Ethn Migr Stud*. 2009;35(2):227–50. doi:10.1080/13691830802586237.
144. Germany opens labour market for skilled workers from non-EU countries. Berlin: German Federal Foreign Office; 2021 (<https://www.auswaertiges-amt.de/en/-/2248702>, accessed 5 April 2022).
145. Clemens M, Huang C, Graham J. The economic and fiscal effects of granting refugees formal labor market access. Washington (DC): Center for Global Development; 2018 (Working Paper no. 496; <https://www.cgdev.org/sites/default/files/economic-and-fiscal-effects-granting-refugees-formal-labor-market-access.pdf>, accessed 5 April 2022).
146. Declaration of Astana. Geneva: World Health Organization; New York: United Nations Children's Fund; 2018 (<https://apps.who.int/iris/handle/10665/328123>, accessed 6 April 2022).
147. Promoting health in the SDGs: report on the 9th Global Conference for health Promotion: All for Health, Health for All, 21–24 November 2016, Shanghai, China. Geneva: World Health Organization; 2017 (<https://apps.who.int/iris/handle/10665/259183>, accessed 5 April 2022).
148. Gil-Salmeron A, Smith L, Yang L, Rieder A, Grabovac I. Differences in health status, health behaviour and healthcare utilisation between immigrant and native homeless people in Spain: an exploratory study. *Health Soc Care Community*. 2021;29(3):856–66. doi:10.1111/hsc.13313.
149. Schaeffer D, Berens EM, Vogt D. Health literacy in the German population. *Dtsch Arztebl Int*. 2017;114(4):53–60. doi:10.3238/arztebl.2017.0053.
150. Raynault M-F, Féthière C, Côté D. Social inequalities in breast cancer screening: evaluating written communications with immigrant Haitian women in Montreal. *Int J Equity Health*. 2020;19(1):209. doi:10.1186/s12939-020-01322-0.
151. Allen EM, Lee HY, Pratt R, Vang H, Desai JR, Dube A et al. Facilitators and barriers of cervical cancer screening and human papilloma virus vaccination among Somali refugee women in the United States: a qualitative analysis. *J Transcult Nurs*. 2019;30(1):55–63. doi:10.1177/1043659618796909.
152. Metusela C, Ussher J, Perz J, Hawkey A, Morrow M, Narchal R et al. "In my culture, we don't know anything about that": sexual and reproductive health of migrant and refugee women. *Int J Behav Med*. 2017;24(6):836–45. doi:10.1007/s12529-017-9662-3.
153. Ilami A, Winter S. Iranian migrants' lived experiences of access to sexual and reproductive healthcare services in Western Australia: a conventional content analysis. *Sex Res Soc Policy*. 2021;18(3):533–46. doi:10.1007/s13178-020-00478-2.
154. Dolan H, Li M, Bateson D, Thompson R, Tam CWM, Bonner C et al. Healthcare providers' perceptions of the challenges and opportunities to engage Chinese migrant women in contraceptive counselling: a qualitative interview study. *Sex Health*. 2020;17(5):405–13. doi:10.1071/SH19215.

155. Åkerman E, Larsson EC, Essén B, Westerling R. A missed opportunity? Lack of knowledge about sexual and reproductive health services among immigrant women in Sweden. *Sex Reprod Healthc.* 2019;19:64–70. doi:10.1016/j.srhc.2018.12.005.
156. Gausman J, Othman A, Daas I, Hamad I, Dabobe M, Langer A. How Jordanian and Syrian youth conceptualise their sexual and reproductive health needs: a visual exploration using concept mapping. *Cult Health Sex.* 2021;23(2):176–91. doi:10.1080/13691058.2019.1698769.
157. El Ayoubi LL, Abdulrahim S, Sieverding M. Sexual and reproductive health information and experiences among Syrian refugee adolescent girls in Lebanon. *Qual Health Res.* 2021;31(5):983–98. doi:10.1177/1049732321989685.
158. Mekonnen GK, Mengistie B, Sahilu G, Mulat W, Kloos H. Caregivers' knowledge and attitudes about childhood diarrhea among refugee and host communities in Gambella Region, Ethiopia. *J Health Popul Nutr.* 2018;37(1):24. doi:10.1186/s41043-018-0156-y.
159. Rahman MR, Faiz MA, Nu MY, Hassan MR, Chakrabarty AK, Kabir I et al. A rapid assessment of health literacy and health status of Rohingya refugees living in Cox's Bazar, Bangladesh following the August 2017 exodus from Myanmar: a cross-sectional study. *Trop Med Infect Dis.* 2020;5(3):110. doi:10.3390/tropicalmed5030110.
160. Ng E, Omariba W. Health literacy and immigrants in Canada: determinants and effects on health outcomes. Canadian Council on Learning; 2010 (http://en.copian.ca/library/research/ccl/health_lit_immigrants_canada/health_lit_immigrants_canada.pdf, accessed 5 April 2022).
161. Berens EM, Pelikan JM, Schaeffer D. The effect of self-efficacy on health literacy in the German population. *Health Promot Int.* 2022;37(1):daab085. doi:10.1093/heapro/daab085.
162. Qiu J, Song D, Nie J, Su M, Hao C, Gu J et al. Utilization of healthcare services among Chinese migrants in Kenya: a qualitative study. *BMC Health Serv Res.* 2019;19(1):995. doi:10.1186/s12913-019-4846-y.
163. Gikonyo BM, Kiruthu F. Determinants of provision of public health care services to asylum seekers in Nairobi City County, Kenya. *Int Acad J Arts Humanit.* 2021;1(2):210–38 (<https://ir-library.ku.ac.ke/handle/123456789/22369>, accessed 5 April 2022).
164. Jaeger FN, Pellaud N, Laville B, Klauser P. The migration-related language barrier and professional interpreter use in primary health care in Switzerland. *BMC Health Serv Res.* 2019;19(1):429. doi:10.1186/s12913-019-4164-4.
165. Soneta M, Kondo A, Abuliezi R, Kimura A. International students' experience with health care in Japan. *SAGE Open.* 2021;11(2). doi:10.1177/21582440211009211.
166. Nathenson RA, Saloner B, Richards MR, Rhodes KV. Spanish-speaking immigrants' access to safety net providers and translation services across traditional and emerging US destinations. *Milbank Q.* 2016;94(4):768–99. doi:10.1111/1468-0009.12231.
167. Leaving no-one behind: access to social protection for all migrant women. New York: UN Women; 2020 (<https://www.aidsdatahub.org/sites/default/files/resource/unwomen-policy-brief-migration-and-social-protection-2020.pdf>, accessed 5 April 2022).
168. Yelland J, Riggs E, Szwarc J, Casey S, Duell-Piening P, Chesters D et al. Compromised communication: a qualitative study exploring Afghan families and health professionals' experience of interpreting support in Australian maternity care. *BMJ Qual Saf.* 2016;25(4):e1. doi:10.1136/bmjqs-2014-003837.
169. MacFarlane A, Huschke S, Pottie K, Hauck FR, Griswold K, Harris MF. Barriers to the use of trained interpreters in consultations with refugees in four resettlement countries: a qualitative analysis using normalisation process theory. *BMC Fam Pract.* 2020;21(1):259. doi:10.1186/s12875-020-01314-7.
170. Khuu BP, Lee HY, Zhou AQ, Shin J, Lee RM. Healthcare providers' perspectives on parental health literacy and child health outcomes among Southeast Asian American immigrants and refugees. *Child Youth Serv Rev.* 2016;67:220–9. doi:10.1016/j.childyouth.2016.06.006.
171. Health of refugees and migrants: regional situation analysis, practices, experiences, lessons learned and ways forward. Manila: WHO Regional Office for the Western Pacific; 2018 (https://www.who.int/docs/default-source/documents/publications/health-of-refugees-and-migrants-wpro-2018.pdf?sfvrsn=ab7602b1_1, accessed 5 April 2022).
172. Hughson J, Marshall F, Daly JO, Woodward-Kron R, Hajek J, Story D. Health professionals' views on health literacy issues for culturally and linguistically diverse women in maternity care: barriers, enablers and the need for an integrated approach. *Aust Health Rev.* 2018;42(1):10. doi:10.1071/AH17067.
173. Villegas N, Cianelli R, de Tantillo L, Warheit M, Montano NP, Ferrer L et al. Assessment of technology use and technology preferences for HIV prevention among Hispanic women. *Hisp Health Care Int.* 2018;16(4):197–203. doi:10.1177/1540415318808828.
174. Wiley G, Piper A, Butow AMP, Schofield P, Douglas F, Roy J et al. Developing written information for cancer survivors from culturally and linguistically diverse backgrounds: lessons learnt. *Asia Pac J Oncol Nurs.* 2018;5(1):121–6. doi:10.4103/apjon.apjon_63_17.
175. Patel H, Szkinc-Olsson G, Al Liddawi ML. A qualitative study of nurses' experiences of self-care counseling in migrant patients with heart failure. *Int J Nurs Sci.* 2021;8(3):279–88. doi:10.1016/j.ijnss.2021.05.004.

176. Ghahari S, Burnett S, Alexander L. Development and pilot testing of a health education program to improve immigrants' access to Canadian health services. *BMC Health Serv Res*. 2020;20(1):321. doi:10.1186/s12913-020-05180-y.
177. DeCamp LR, Godage SK, Valenzuela Araujo D, Dominguez Cortez J, Wu L, Psoter KJ et al. A texting intervention in Latino families to reduce ED use: a randomized trial. *Pediatrics*. 2020;145(1):e20191405. doi:10.1542/peds.2019-1405.
178. Mas FS, Schmitt CL, Jacobsen HE, Myers OB. A cardiovascular health intervention for Spanish speakers: the health literacy and ESL curriculum. *J Community Health*. 2018;43(4):717–24. doi:10.1007/s10900-018-0475-3.
179. Kosiyaporn H, Julchoo S, Phaiyrom M, Sinam P, Kunpeuk W, Pudpong N et al. Strengthening the migrant-friendliness of Thai health services through interpretation and cultural mediation: a system analysis. *Glob Health Res Policy*. 2020;5(1):53. doi:10.1186/s41256-020-00181-0.
180. Pocock NS, Chan Z, Loganathan T, Suphanchaimat R, Kosiyaporn H, Allotey P et al. Moving towards culturally competent health systems for migrants? Applying systems thinking in a qualitative study in Malaysia and Thailand. *PLOS One*. 2020;15(4):e0231154. doi:10.1371/journal.pone.0231154.
181. Verrept H. What are the roles of intercultural mediators in health care and what is the evidence on their contributions and effectiveness in improving accessibility and quality of care for refugees and migrants in the WHO European Region? Copenhagen: WHO Regional Office for Europe; 2019 (Health Evidence Network synthesis report no. 64; <https://apps.who.int/iris/handle/10665/327321>, accessed 11 April 2022).
182. McGarry O, Hannigan A, De Almeida MM, Severoni S, Puthooppambal SJ, MacFarlane A. What strategies to address communication barriers for refugees and migrants in health care settings have been implemented and evaluated across the WHO European Region? Copenhagen: WHO Regional Office for Europe; 2018 (Health Evidence Network synthesis report no. 62; <https://apps.who.int/iris/handle/10665/326238>, accessed 11 April 2022).
183. Tuteja A, Sanci L, Mascarenhas L, Riggs E, Dwyer LO, Villet DV et al. Understanding sexual health language: community engagement with refugees from Burma, post settlement in Australia. *Sex Transm Infect*. 2017;93(suppl 2):A5–6. doi:10.1136/sextrans-2017-053264.13.
184. Jonassen M, Shaheen A, Duraidi M, Qalalwa K, Jeune B, Brønnum-Hansen H. Socio-economic status and chronic disease in the West Bank and the Gaza Strip: in and outside refugee camps. *Int J Public Health*. 2018;63(7):875–82. doi:10.1007/s00038-018-1122-6.
185. Beiser M, Hou F. Language acquisition, unemployment and depressive disorder among Southeast Asian refugees: a 10-year study. *Soc Sci Med*. 2001;53(10):1321–34. doi:10.1016/S0277-9536(00)00412-3.
186. Ncube A, Bahta Y, Jordaan A. Coping and adaptation mechanisms employed by sub-Saharan African migrant women in South Africa. *Jamba*. 2019;11(1):645. doi:10.4102/jamba.v11i1.645.
187. Knipe DW, Gunnell D, Pieris R, Priyadarshana C, Weerasinghe M, Pearson M et al. Socioeconomic position and suicidal behaviour in rural Sri Lanka: a prospective cohort study of 168,000+ people. *Soc Psychiatry Psychiatr Epidemiol*. 2019;54(7):843–55. doi:10.1007/s00127-019-01672-3.
188. Asia-Pacific migration report 2020: assessing implementation of the global compact for migration. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific; 2020 (<https://www.aidsdatahub.org/sites/default/files/resource/escap-asia-pacific-migration-repport-2020.pdf>, accessed 5 April 2022).
189. World migration report 2020. Geneva: International Organization for Migration; 2021 (https://publications.iom.int/system/files/pdf/wmr_2020.pdf, accessed 5 April 2022).
190. Castro A. Pobreza y migraciones [Poverty and migration]. *Rev Derecho Estado*. 2010;24:65–80 (in Spanish; <https://revistas.uexternado.edu.co/index.php/derest/article/view/420>, accessed 5 April 2022).
191. Jamil R, Kumar R. Culture, structure, and health: narratives of low-income Bangladeshi migrant workers from the United Arab Emirates. *Health Commun*. 2021;36(11):1297–308. doi:10.1080/10410236.2020.1750773.
192. Gul A, Naz A, Nadeemullah M. Migration and women left behind: challenges and constraints. *Clin Soc Work Health Interv*. 2018;9(4):30–5. doi:10.22359/cswhi_9_4_05.
193. Ariadi S, Saud M, Ashfaq A. Analyzing the effect of remittance transfer on socioeconomic well-being of left-behind parents: a study of Pakistan and Azad Jammu and Kashmir (AJK). *J Int Migr Integr*. 2019;20(3):809–21. doi:10.1007/s12134-018-0632-7.
194. Mushtaq R, Khalily MT, Gul S. Determinants of depression anxiety stress among left behind families in Azad Jammu & Kashmir. *Pak Armed Forces Med J*. 2017;67(3):472–7 (<https://www.pafmj.org/index.php/PAFMJ/article/view/574>, accessed 6 April 2022).
195. McCabe BE, Mitchell EM, Gonzalez-Guarda RM, Peragallo N, Mitrani VB. Transnational motherhood: health of Hispanic mothers in the United States who are separated from children. *J Transcult Nurs*. 2017;28(3):243–50. doi:10.1177/1043659616644960.
196. Urzúa A, Heredia O, Caqueo-Úrizar A. Salud mental y estrés por aculturación en inmigrantes sudamericanos en el norte de Chile [Mental health and stress caused by acculturation in immigrants from South America in northern Chile]. *Rev Med Chil*. 2016;144(5):563–70 (in Spanish). doi:10.4067/S0034-98872016000500002.

197. Atake EH. The impacts of migration on maternal and child health services utilisation in sub-Saharan Africa: evidence from Togo. *Public Health*. 2018;162:16–24. doi:10.1016/j.puhe.2018.05.010.
198. Afulani PA, Torres JM, Sudhinaraset M, Asunka J. Transnational ties and the health of sub-Saharan African migrants: the moderating role of gender and family separation. *Soc Sci Med*. 2016;168:63–71. doi:10.1016/j.socscimed.2016.09.009.
199. Pannetier J, Lert F, Jauffret Roustide M, du Loû AD. Mental health of sub-Saharan African migrants: the gendered role of migration paths and transnational ties. *SSM – Popul Health*. 2017;3:549–57. doi:10.1016/j.ssmph.2017.06.003.
200. Mingot ES. The gendered burden of transnational care-receiving: Sudanese families across the Netherlands, the UK and Sudan. *Gend Place Cult*. 2020;27(4):546–67. doi:10.1080/0966369X.2019.1611546.
201. Nguyen CV. Does parental migration really benefit left-behind children? Comparative evidence from Ethiopia, India, Peru and Vietnam. *Soc Sci Med*. 2016;153:230–9. doi:10.1016/j.socscimed.2016.02.021.
202. Nwadiuko J, German J, Chapla K, Wang F, Venkataramani M, Vaidya D et al. Changes in health care use among undocumented patients, 2014–2018. *JAMA Netw Open*. 2021;4(3):e210763. doi:10.1001/jamanetworkopen.2021.0763.
203. Müllerschön J, Koschollek C, Santos-Hövenner C, Kuehne A, Müller-Nordhorn J, Bremer V. Impact of health insurance status among migrants from sub-Saharan Africa on access to health care and HIV testing in Germany: a participatory cross-sectional survey. *BMC Int Health Hum Rights*. 2019;19(1):10. doi:10.1186/s12914-019-0189-3.
204. Nkulu Kalengayi FK, Hurtig A-K, Ahlm C, Krantz I. Fear of deportation may limit legal immigrants' access to HIV/AIDS-related care: a survey of Swedish language school students in northern Sweden. *J Immigr Minor Health*. 2012;14(1):39–47. doi:10.1007/s10903-011-9509-y.
205. Yu M, Kelley AT, Morgan AU, Duong A, Mahajan A, Gipson JD. Challenges for adult undocumented immigrants in accessing primary care: a qualitative study of health care workers in Los Angeles County. *Health Equity*. 2020;4(1):366–74. doi:10.1089/heq.2020.0036.
206. Rajaraman N, Yip T-W, Kuan BYH, Lim JFY. Exclusion of migrant workers from national UHC systems—perspectives from HealthServe, a non-profit organisation in Singapore. *Asian Bioeth Rev*. 2020;12(3):363–74. doi:10.1007/s41649-020-00138-y.
207. Allerton C. Statelessness and the lives of the children of migrants in Sabah, East Malaysia. *Tilburg Law Rev*. 2014;19(1–2):26–34. doi:10.1163/22112596-01902004.
208. Lasimbang HB, Tong WT, Low WY. Migrant workers in Sabah, East Malaysia: the importance of legislation and policy to uphold equity on sexual and reproductive health and rights. *Best Pract Res Clin Obstet Gynaecol*. 2016;32:113–23. doi:10.1016/j.bpobgyn.2015.08.015.
209. Stubbe Østergaard L, Norredam M, Mock-Munoz de Luna C, Blair M, Goldfeld S, Hjern A. Restricted health care entitlements for child migrants in Europe and Australia. *Eur J Public Health*. 2017;27(5):869–73. doi:10.1093/eurpub/ckx083.
210. Boonchutima S, Sukonthasab S, Sthapitanonda P. Myanmar migrants' access to information on HIV/AIDS in Thailand. *J Sport Sci Health*. 2020;21(1):111–24 (https://he02.tci-thaijo.org/index.php/spsc_journal/article/download/241521/164472/, accessed 5 April 2022).
211. Regmi PR, van Teijlingen E, Mahato P, Aryal N, Jadhav N, Simkhada P et al. The health of Nepali migrants in India: a qualitative study of lifestyles and risks. *Int J Environ Res Public Health*. 2019;16(19):3655. doi:10.3390/ijerph16193655.
212. Wang JS-H, Kaushal N. Health and mental health effects of local immigration enforcement. *Int Migr Rev*. 2019;53(4):970–1001. doi:10.1177/0197918318791978.
213. Kammogne CL, Marchand A. Ethnicité et statut d'immigrant : quelle association avec le travail et les symptômes dépressifs? [Ethnicity and immigration status: how are they associated with work and depressive symptoms?]. *Rev Epidemiol Sante Publique*. 2021;69(3):145–53 (in French). doi:10.1016/j.respe.2021.01.009.
214. Mera-Lemp MJ, Martínez-Zelaya G, Orellana A, Smith-Castro V. Acculturation orientations, acculturative stress and psychological well-being on Latin American immigrants settled in Santiago, Chile. *Acta Colomb Psicol*. 2020;23(1):231–44. doi:10.14718/ACP.2020.23.1.11.
215. Suhaiban A, Grasser J, Javanbakht A. Mental health of refugees and torture survivors: a critical review of prevalence, predictors, and integrated care. *Int J Environ Res Public Health*. 2019;16(13):2309. doi:10.3390/ijerph16132309.
216. Novella AC, Monroy AMV, Wharton T. Migración de venezolanos a Florida Central, Estados Unidos: aspectos relacionados con la percepción de condiciones y necesidades de salud mental en 2019 [Migration of Venezuelans to Central Florida, United States: aspects related to the perception of mental health conditions and needs in 2019]. *Gerenc Políticas Salud*. 2020;19:1–18 (in Spanish). doi:10.11144/Javeriana.rgps19.mvfc.
217. Blackmore R, Boyle JA, Fazel M, Ranasinha S, Gray KM, Fitzgerald G et al. The prevalence of mental illness in refugees and asylum seekers: a systematic review and meta-analysis. *PLOS Med*. 2020;17(9):e1003337. doi:10.1371/journal.pmed.1003337.
218. Swan LET, Im H. Risk and protective factors for common mental disorders among urban Somali refugee youth. *J Child Adolesc Trauma*. 2020;14(3):321–33. doi:10.1007/s40653-020-00325-x.

219. Sarkadi A, Ådahl K, Stenvall E, Ssegonja R, Batti H, Gavra P et al. Teaching recovery techniques: evaluation of a group intervention for unaccompanied refugee minors with symptoms of PTSD in Sweden. *Eur Child Adolesc Psychiatry*. 2018;27(4):467–79. doi:10.1007/s00787-017-1093-9.
220. Michalopoulos LM, Ncube N, Simona SJ, Kansankala B, Sinkala E, Raidoo J. A qualitative study of migrant-related stressors, psychosocial outcomes and HIV risk behaviour among truck drivers in Zambia. *Afr J AIDS Res*. 2016;15(3):219–26. doi:10.2989/16085906.2016.1179653.
221. Jirattikorn A, Tangmunkongvorakul A, Musumari PM, Ayuttacorn A, Srithanaviboonchai K, Banwell C et al. Sexual risk behaviours and HIV knowledge and beliefs of Shan migrants from Myanmar living with HIV in Chiang Mai, Thailand. *Int J Migr Health Soc Care*. 2020;16(4):543–56. doi:10.1108/IJMHS-09-2019-0080.
222. Selvey LA, Lobo RC, McCausland KL, Donovan B, Bates J, Hallett J. Challenges facing Asian sex workers in Western Australia: implications for health promotion and support services. *Front Public Health*. 2018;6:171. doi:10.3389/fpubh.2018.00171.
223. Zibrik L, Huang A, Wong V, Lauscher HN, Choo Q, Yoshida EM et al. Let's talk about B: barriers to hepatitis B screening and vaccination among Asian and South Asian immigrants in British Columbia. *J Racial Ethn Health Disparities*. 2018;5(6):1337–45. doi:10.1007/s40615-018-0483-0.
224. Katz SJ, Wallner LP, Abrahamse PH, Janz NK, Martinez KA, Shumway DA. Treatment experiences of Latinas after diagnosis of breast cancer. *Cancer*. 2017;123(16):3022–30. doi:10.1002/cncr.30702.
225. Finch BK, Frank R, Vega WA. Acculturation and acculturation stress: a social-epidemiological approach to Mexican migrant farmworkers' health. *Int Migr Rev*. 2004;38(1):236–62. doi:10.1111/j.1747-7379.2004.tb00195.x.
226. Markides KS, Rote S. The healthy immigrant effect and aging in the United States and other western countries. *Gerontologist*. 2019;59(2):205–14. doi:10.1093/geront/gny136.
227. Sim A, Bowes L, Gardner F. Modeling the effects of war exposure and daily stressors on maternal mental health, parenting, and child psychosocial adjustment: a cross-sectional study with Syrian refugees in Lebanon. *Glob Ment Health*. 2018;5:e40. doi:10.1017/gmh.2018.33.
228. Sangalang CC, Jager J, Harachi TW. Effects of maternal traumatic distress on family functioning and child mental health: an examination of Southeast Asian refugee families in the US. *Soc Sci Med*. 2017;184:178–86. doi:10.1016/j.socscimed.2017.04.032.
229. Shah SM, Al Dhaheri F, Albanna A, Al Jaber N, Al Eissaee S, Alshehhi NA et al. Self-esteem and other risk factors for depressive symptoms among adolescents in United Arab Emirates. *PLOS One*. 2020;15(1):e0227483. doi:10.1371/journal.pone.0227483.
230. Chiumento A, Rutayisire T, Sarabwe E, Hasan MT, Kasujja R, Nabirinde R et al. Exploring the mental health and psychosocial problems of Congolese refugees living in refugee settings in Rwanda and Uganda: a rapid qualitative study. *Confl Health*. 2020;14(1):77. doi:10.1186/s13031-020-00323-8.
231. Sharma V, Papaefstathiou S, Tewolde S, Amobi A, Deyessa N, Relyea B et al. Khat use and intimate partner violence in a refugee population: a qualitative study in Dollo Ado, Ethiopia. *BMC Public Health*. 2020;20(1):670. doi:10.1186/s12889-020-08837-9.
232. Salama E, Niemelä S, Suvisaari J, Laatikainen T, Koponen P, Castaneda AE. The prevalence of substance use among Russian, Somali and Kurdish migrants in Finland: a population-based study. *BMC Public Health*. 2018;18(1):651. doi:10.1186/s12889-018-5564-9.
233. Kane JC, Greene MC. Addressing alcohol and substance use disorders among refugees: a desk review of intervention approaches. Geneva: United Nations High Commissioner for Refugees; 2018 (<https://www.unhcr.org/uk/protection/health/5c064a8d4/addressing-alcohol-substance-use-disorders-among-refugees-desk-review-intervention.html>, accessed 5 April 2022).
234. Sordo L, Indave BI, Vallejo F, Belza MJ, Sanz-Barbero B, Rosales-Statkus M et al. Effect of country-of-origin contextual factors and length of stay on immigrants' substance use in Spain. *Eur J Public Health*. 2015;25(6):930–6. doi:10.1093/eurpub/ckv144.
235. Widmann M, Apondi B, Musau A, Warsame AH, Isse M, Mutiso V et al. Comorbid psychopathology and everyday functioning in a brief intervention study to reduce khat use among Somalis living in Kenya: description of baseline multimorbidity, its effects of intervention and its moderation effects on substance use. *Soc Psychiatry Psychiatr Epidemiol*. 2017;52(11):1425–34. doi:10.1007/s00127-017-1368-y.
236. Addo J, Cook S, Galbete C, Agyemang C, Klipstein-Grobusch K, Nicolaou M et al. Differences in alcohol consumption and drinking patterns in Ghanaians in Europe and Africa: the RODAM study. *PLOS One*. 2018;13(11):e0206286. doi:10.1371/journal.pone.0206286.
237. Riosmena F, Wong R, Palloni A. Migration selection, protection, and acculturation in health: a binational perspective on older adults. *Demography*. 2013;50(3):1039–64. doi:10.1007/s13524-012-0178-9.
238. Luo T, Escalante CL. Stringent immigration enforcement and the mental health and health-risk behaviors of Hispanic adolescent students in Arizona. *Health Econ*. 2021;30(1):86–103. doi:10.1002/hec.4178.

239. Alegría M, Falgas-Bague I, Collazos F, Carmona Camacho R, Lapatin Markle S, Wang Y et al. Evaluation of the integrated intervention for dual problems and early action among Latino immigrants with co-occurring mental health and substance misuse symptoms: a randomized clinical trial. *JAMA Netw Open*. 2019;2(1):e186927. doi:10.1001/jamanetworkopen.2018.6927.
240. Keim-Malpass J, Spears Johnson CR, Quandt SA, Arcury TA. Perceptions of housing conditions among migrant farmworkers and their families: implications for health, safety and social policy. *Rural Remote Health*. 2015;15:3076. doi:10.22605/RRH3076.
241. Ma G, Hofmann E. Immigration and environment in the US: a spatial study of air quality. *Soc Sci J*. 2018;56(1):94–106. doi:10.1016/j.soscij.2018.08.007.
242. Luksamijarulkul P, Suknongbung S, Vatanasomboon P, Sujirarat D. Health status, environmental living conditions and microbial indoor air quality among migrant worker households in Thailand. *Southeast Asian J Trop Med Public Health*. 2017;48(2):396–406. PMID:29642302.
243. Chan EYY, Chiu CP, Chan GKW. Medical and health risks associated with communicable diseases of Rohingya refugees in Bangladesh 2017. *Int J Infect Dis*. 2018;68:39–43. doi:10.1016/j.ijid.2018.01.001.
244. Torres-Duque C, Maldonado D, Pérez-Padilla R, Ezzati M, Viegi G. Biomass fuels and respiratory diseases: a review of the evidence. *Proc Am Thorac Soc*. 2008;5(5):577–90. doi:10.1513/pats.200707-100RP.
245. Albadra D, Kuchai N, Acevedo De Los Ríos A, Rondinel-Oviedo D, Coley D, da Silva CF et al. Measurement and analysis of air quality in temporary shelters on three continents. *Build Environ*. 2020;185:107259. doi:10.1016/j.buildenv.2020.107259.
246. Shammi M, Robi MR, Tareq SM. COVID-19: socio-environmental challenges of Rohingya refugees in Bangladesh. *J Environ Health Sci Eng*. 2020;18(2):1709–11. doi:10.1007/s40201-020-00489-6.
247. Rivoal M, Haselip JA. The true cost of using traditional fuels in a humanitarian setting. Case study of the Nyarugusu refugee camp, Kigoma region, Tanzania. Nairobi: United Nations Environment Programme; Copenhagen: Denmark Technical University; 2017 (UNEP DTU Partnership Working Paper no. 3; <https://unepdtu.org/publications/the-true-cost-of-using-traditional-fuels-in-a-humanitarian-setting-case-study-of-the-nyarugusu-refugee-camp-kigoma-region-tanzania/>, accessed 5 April 2022).
248. Wolff F, Kothe H, Mubiru A, Gashirabake J, Uwimana I, Dalhoff K. Positive impact of improved cookstove usage on respiratory health in Congolese refugees: a prospective cohort study. *Environ Sci Pollut Res*. 2020;27(4):4509–12. doi:10.1007/s11356-019-06816-1.
249. Lehne J, Blyth W, Lahn G, Bazilian M, Grafham O. Energy services for refugees and displaced people. *Energy Strategy Rev*. 2016;13–14:134–46. doi:10.1016/j.esr.2016.08.008.
250. Benka-Coker ML, Tadele W, Milano A, Getaneh D, Stokes H. A case study of the ethanol CleanCook stove intervention and potential scale-up in Ethiopia. *Energy Sustain Dev*. 2018;46:53–64. doi:10.1016/j.esd.2018.06.009.
251. Ma'arof MIN, Chala GT, Nair SR. Performance analysis of turbine ventilators for refugee camps usage. *Int J Mech Eng Tech*. 2019;10(3):1373–83 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3453033, accessed 5 April 2022).
252. Haque MS. Sustainable use of plastic brick from waste PET plastic bottle as building block in Rohingya refugee camp: a review. *Environ Sci Pollut Res*. 2019;26(36):36163–83. doi:10.1007/s11356-019-06843-y.
253. Mekonnen GK, Mengistie B, Sahilu G, Mulat W, Kloos H. Determinants of microbiological quality of drinking water in refugee camps and host communities in Gambella Region, Ethiopia. *J Water Sanit Hyg Dev*. 2019;9(4):671–82. doi:10.2166/washdev.2019.148.
254. Khoury S, Graczyk T, Burnham G, Jurdi M, Goldman L. Drinking water system treatment and contamination in Shatila Refugee Camp in Beirut, Lebanon. *East Mediterr Health J*. 2016;22(8):568–78. doi:10.26719/2016.22.8.568.
255. Mugumya T, Isunju JB, Ssekamatte T, Wafula ST, Mugambe RK. Factors associated with adherence to safe water chain practices among refugees in Pagirinya refugee settlement, northern Uganda. *J Water Health*. 2020;18(3):398–408. doi:10.2166/wh.2020.230.
256. Ali SI, Arnold M, Liesner F, Fesselet J-F. Characterisation of disinfection by-products levels at an emergency surface water treatment plant in a refugee settlement in northern Uganda. *Water*. 2019;11(4):647. doi:10.3390/w11040647.
257. Hsan K, Naher S, Griffiths MD, Shamol HH, Rahman MA. Factors associated with the practice of water, sanitation, and hygiene (WASH) among the Rohingya refugees in Bangladesh. *J Water Sanit Hyg Dev*. 2019;9(4):794–800. doi:10.2166/washdev.2019.038.
258. Ali SI, Ali SS, Fesselet JF. Evidence-based chlorination targets for household water safety in humanitarian settings: recommendations from a multi-site study in refugee camps in South Sudan, Jordan, and Rwanda. *Water Res*. 2021;189:116642. doi:10.1016/j.watres.2020.116642.
259. Al-Hourani MAK, Azzam AB, Jaber R. Manifestations of lifeworld crisis among Syrian male youth in Jordanian refugee camps. *Int J Child Youth Fam Stud*. 2019;10(4):3–23. doi:10.18357/ijcyfs104.1201919284.
260. Patrick M, Tsige Y, Adow A, Abdirashid M, Yunis H, Githiri D et al. Acceptability of urine diversion dry toilets in Dollo Ado refugee camp, Ethiopia. *Int J Hyg Environ Health*. 2021;234:113745. doi:10.1016/j.ijheh.2021.113745.

261. Nyoka R, Foote AD, Woods E, Lokey H, O'Reilly CE, Magumba F et al. Sanitation practices and perceptions in Kakuma refugee camp, Kenya: comparing the status quo with a novel service-based approach. *PLOS One*. 2017;12(7):e0180864. doi:10.1371/journal.pone.0180864.
262. Akhter M, Uddin SMN, Rafa N, Hridi SM, Staddon C, Powell W. Drinking water security challenges in Rohingya refugee camps of Cox's Bazar, Bangladesh. *Sustainability*. 2020;12(18):7325. doi:10.3390/su12187325.
263. Rahman MR. Rohingya crisis – health issues. *Delta Med Coll J*. 2018;6(1):1–3. doi:10.3329/dmcj.v6i1.35960.
264. Namara F, Mendoza H, Tumukunde G, Wafula ST. Access to functional handwashing facilities and associated factors among South Sudanese refugees in Rhino Camp Settlement, northwestern Uganda. *J Environ Public Health*. 2020;2020:3089063. doi:10.1155/2020/3089063.
265. Kisera N, Luxemburger C, Tornieporth N, Otieno G, Inda J. A descriptive cross-sectional study of cholera at Kakuma and Kalobeyei refugee camps, Kenya in 2018. *Pan Afr Med J*. 2020;37:197. doi:10.11604/pamj.2020.37.197.24798.
266. Claus P-E, Ceuppens A-S, Cool M, Alliet G. *Ascaris lumbricoides*: challenges in diagnosis, treatment and prevention strategies in a European refugee camp. *Acta Clin Belg*. 2018;73(6):431–4. doi:10.1080/17843286.2018.1436956.
267. Nahimana M-R, Ngoc CT, Olu O, Nyamusore J, Isiaka A, Ndahindwa V et al. Knowledge, attitude and practice of hygiene and sanitation in a Burundian refugee camp: implications for control of a *Salmonella typhi* outbreak. *Pan Afr Med J*. 2017;28:54. doi:10.11604/pamj.2017.28.54.12265.
268. Arétouyap Z, Osang Liku E, Bernard Nka L, Bagnem JE, Zambo EA. Water and hygiene quality in the Borgop-Cameroon Refugee Camp and its potential adverse impacts on environment and public health. *J Environ Sci Public Health*. 2017;1(3):139–50. doi:10.26502/jesph.96120014.
269. Scobie HM, Phares CR, Wannemuehler KA, Nyangoma E, Taylor EM, Fulton A et al. Use of oral cholera vaccine and knowledge, attitudes, and practices regarding safe water, sanitation and hygiene in a long-standing refugee camp, Thailand, 2012–2014. Vinetz JM, editor. *PLOS Negl Trop Dis*. 2016;10(12):e0005210. doi:10.1371/journal.pntd.0005210.
270. Castillo F, Mora AM, Kayser GL, Vanos J, Hyland C, Yang AR et al. Environmental health threats to Latino migrant farmworkers. *Annu Rev Public Health*. 2021;42(1):257–76. doi:10.1146/annurev-publhealth-012420-105014.
271. Walton AL, LePrevost C, Wong B, Linnan L, Sanchez-Birkhead A, Mooney K. Pesticides: perceived threat and protective behaviors among Latino farmworkers. *J Agromedicine*. 2017;22(2):140–7. doi:10.1080/1059924X.2017.1283278.
272. Walton AL, LePrevost C, Wong B, Linnan L, Sanchez-Birkhead A, Mooney K. Observed and self-reported pesticide protective behaviors of Latino migrant and seasonal farmworkers. *Environ Res*. 2016;147:275–83. doi:10.1016/j.envres.2016.02.020.
273. Woh PY, Thong KL, Behnke JM, Lewis JW, Mohd Zain SN. Evaluation of basic knowledge on food safety and food handling practices amongst migrant food handlers in Peninsular Malaysia. *Food Control*. 2016;70:64–73. doi:10.1016/j.foodcont.2016.05.033.
274. Suen LKP, Rana T. Knowledge level and hand hygiene practice of Nepalese immigrants and their host country population: a comparative study. *Int J Environ Res Public Health*. 2020;17(11):4019. doi:10.3390/ijerph17114019.
275. Carta MG, Moro D, Oumar FW, Moro MF, Pintus M, Pintus E et al. A follow-up on psychiatric symptoms and post-traumatic stress disorders in Tuareg refugees in Burkina Faso. *Front Psychiatry*. 2018;9:127. doi:10.3389/fpsy.2018.00127.
276. Allen J, Balfour R, Bell R, Marmot M. Social determinants of mental health. *Int Rev Psychiatry*. 2014;26(4):392–407. doi:10.3109/09540261.2014.928270.
277. Arega NT. The plights of Eritrean refugees in the Shimelba Refugee Camp, Ethiopia. *Int J Migr Health Soc Care*. 2017;13(1):93–105. doi:10.1108/IJMHS-02-2016-0007.
278. Habib RR, Ziadee M, Younes EA, Asmar KE, Jawad M. The association between living conditions and health among Syrian refugee children in informal tented settlements in Lebanon. *J Public Health*. 2020;42(3):e323–33. doi:10.1093/pubmed/fdz108.
279. Habib RR, Mikati D, Hojeij S, Asmar KE, Chaaya M, Zurayk R. Associations between poor living conditions and multi-morbidity among Syrian migrant agricultural workers in Lebanon. *Eur J Public Health*. 2016;26(6):1039–44. doi:10.1093/eurpub/ckw096.
280. Wu X, Lu X, Schneider E, Ahmed JA, Njenga MK, Breiman RF et al. Reassessment of high prevalence human adenovirus detections among residents of two refugee centers in Kenya under surveillance for acute respiratory infections. *J Med Virol*. 2019;91(3):385–91. doi:10.1002/jmv.25320.
281. Saikal SL, Ge L, Mir A, Pace J, Abdulla H, Leong KF et al. Skin disease profile of Syrian refugees in Jordan: a field-mission assessment. *J Eur Acad Dermatol Venereol*. 2020;34(2):419–25. doi:10.1111/jdv.15909.
282. Impact of the COVID-19 crisis in the Maldives. Malé: Ministry of Economic Development, Government of Maldives; 2020 (<https://maldives.un.org/sites/default/files/2021-03/1598369482.pdf>, accessed 6 April 2022).
283. Sadarangani SP, Lim PL, Vasoo S. Infectious diseases and migrant worker health in Singapore: a receiving country's perspective. *J Travel Med*. 2017;24(4). doi:10.1093/jtm/tax014.

284. ApartTogether survey: preliminary overview of refugees and migrants self-reported impact of COVID-19. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/337931>, accessed 6 April 2022).
285. Louni M, Amanzougaghene N, Mana N, Fenollar F, Raoult D, Bitam I et al. Detection of bacterial pathogens in clade E head lice collected from Niger's refugees in Algeria. *Parasit Vectors*. 2018;11(1):348. doi:10.1186/s13071-018-2930-5.
286. Öztürk MK. Skin diseases in rural Nyala, Sudan (in a rural hospital, in 12 orphanages, and in two refugee camps). *Int J Dermatol*. 2019;58(11):1341–9. doi:10.1111/ijd.14619.
287. Fernández-Villalobos NV, Arbeláez-Montoya MP. Factores relacionados con los casos de tuberculosis en Costa Rica, 2012–2015 [Factors related to tuberculosis cases in Costa Rica, 2012–2015]. *Rev Cuba Salud Pública*. 2020;46(3) (in Spanish; <http://www.revsaludpublica.sld.cu/index.php/spu/article/view/1455>, accessed 6 April 2022).
288. Kearney GD, Chatterjee AB, Talton J, Chen H, Quandt SA, Summers P et al. The association of respiratory symptoms and indoor housing conditions among migrant farmworkers in eastern North Carolina. *J Agromedicine*. 2014;19(4):395–405. doi:10.1080/1059924X.2014.947458.
289. Hernández-Vásquez A, Vargas-Fernández R, Rojas-Roque C, Bendezu-Quispe G. Factores asociados a la no utilización de servicios de salud en inmigrantes venezolanos en Perú [Factors associated with the non-utilization of healthcare services among Venezuelan migrants in Peru]. *Rev Peru Med Exp Salud Publica*. 2019;36(4):583–91 (in Spanish). doi:10.17843/rpmesp.2019.360.4654.
290. Quandt SA, Brooke C, Fagan K, Howe A, Thornburg TK, McCurdy SA. Farmworker housing in the United States and its impact on health. *New Solut*. 2015;25(3):263–86. doi:10.1177/1048291115601053.
291. Hanley J, Ives N, Lenet J, Hordyk S-R, Walsh C, Ben Soltane S et al. Migrant women's health and housing insecurity: an intersectional analysis. *Int J Migr Health Soc Care*. 2019;15(1):90–106. doi:10.1108/IJMHS-05-2018-0027.
292. Chepo M, Astorga-Pinto S, Cabieses B. Atenção inicial a populações migrantes no Chile: iniciativa em atenção primária à saúde após um ano da sua implementação [Initial care for migrants in Chile: status of a primary health care initiative after one year of implementation]. *Rev Panam Salud Publica*. 2019;43:e71 (in Spanish). doi:10.26633/RPSP.2019.71.
293. Segal SP, Khoury VC, Salah R, Ghannam J. Contributors to screening positive for mental illness in Lebanon's Shatila Palestinian refugee camp. *J Nerv Ment Dis*. 2018;206(1):46–51. doi:10.1097/NMD.0000000000000751.
294. Corrado A. Is Italian agriculture a "pull factor" for irregular migration – and, if so, why? New York: Open Society Foundations; 2018 (<https://www.opensocietyfoundations.org/publications/italian-agriculture-pull-factor-irregular-migration-and-if-so-why>, accessed 6 April 2022).
295. Fuori campo 2018: insediamenti informali: marginalità sociale, ostacoli all'accesso alle cure e ai beni essenziali per migranti e rifugiati [Out-of-field 2018: informal settlements: social marginalisation, barriers to access to care and essential goods for migrants and refugees]. Rome: Médecins Sans Frontières; 2018 (in Italian; <https://www.medicisenzafrontiere.it/wp-content/uploads/2019/04/Fuoricampo2018.pdf>, accessed 6 April 2022).
296. Ravnbøl CI. Doubling syndemics: ethnographic accounts of the health situation of homeless Romanian Roma in Copenhagen. *Health Hum Rights*. 2017;19(2):73–88. PMID:29302164.
297. Ahmed N, Kumait AS, Othman S, Al-Tawil N. Assessment of certain aspects and health issues that encountered by street children and adolescents in Kirkuk city. *Indian J Forensic Med Toxicol*. 2019;13(3):298–304. doi:10.5958/0973-9130.2019.00213.5.
298. There are alternatives: a handbook for preventing unnecessary immigration detention (revised edition). Melbourne: International Detention Coalition; 2015 (<https://idcoalition.org/wp-content/uploads/2015/10/There-Are-Alternatives-2015.pdf>, accessed 6 April 2022).
299. Glossary on migration. Geneva: International Organization for Migration; 2019 (https://publications.iom.int/system/files/pdf/iml_34_glossary.pdf, accessed 6 April 2022).
300. Beyond detention: a global strategy to support governments to end the detention of asylum-seekers and refugees. Geneva: United Nations High Commissioner for Refugees; 2014 (<https://www.unhcr.org/protection/detention/53aa929f6/beyond-detention-global-strategy-support-governments-end-detention-asylum.html>, accessed 6 April 2022).
301. Flynn M. Who must be detained? Proportionality as a tool for critiquing immigration detention policy. *Refug Surv Q*. 2012;3(3):40–68. doi:10.1093/rsq/hds008.
302. Fact sheet no. 26, the Working Group on Arbitrary Detention. Geneva: United Nations Office of the High Commissioner for Human Rights; 2000 (<https://www.refworld.org/docid/479477440.html>, accessed 6 April 2022).
303. Immigration detention centres [website]. Geneva: Global Detention Project; 2022 (<https://www.globaldetentionproject.org/detention-centres/list-view>, accessed 6 April 2022).
304. COVID-19 & immigration detention: what can governments and other stakeholders do? Geneva: United Nations Network on Migration; 2020 (<https://www.refworld.org/docid/5eac26514.html>, accessed 6 April 2022).
305. Majcher I, Flynn M, Grange M. Immigration detention in the European Union: in the shadow of the "crisis", first edition. New York: Springer; 2020 (European Studies of Population no. 22; <https://www.globaldetentionproject.org/immigration-detention-in-the-european-union-in-the-shadow-of-the-crisis>, accessed 6 April 2022).

306. Ghezelbash D. *Refuge lost: asylum law in an interdependent world*. Cambridge: Cambridge University Press; 2018.
307. FitzGerald DS. *Refuge beyond reach: how rich democracies repel asylum seekers*. Oxford, New York: Oxford University Press; 2019.
308. Flynn M. There and back again: on the diffusion of immigration detention. *J Migr Hum Secur*. 2018;2(3):165–97. doi:10.1177/233150241400200302.
309. *The uncounted: detention of migrants and asylum seekers in Europe*. Geneva: Global Detention Project; 2015 (<https://www.globaldetentionproject.org/wp-content/uploads/2015/12/The-Uncounted.pdf>, accessed 6 April 2022).
310. Brooker S, Albert S, Young P, Steel Z. Mental health care in an invalidating environment: the case of immigration detention in Australia. In: Flynn MJ, Flynn MB, editors. *Challenging immigration detention*. Cheltenham: Edward Elgar Publishing; 2017.
311. Takei C, Small M, Wu C, Chan J. *Fatal neglect: how ICE ignores deaths in detention*. New York: American Civil Liberties Union. 2016; (https://www.aclu.org/sites/default/files/field_document/fatal_neglect_acludwnnijc.pdf, accessed 6 April 2022).
312. *Failures and cover-ups: suicide in UK detention centres* [website]. London: Bail for Immigration Detainees; 2019 (<https://www.biduk.org/articles/532-failures-and-cover-ups-suicide-in-uk-detention-centres>, accessed 6 April 2022).
313. Blunt M. *Systemic indifference: dangerous & substandard medical care in US immigration detention*. New York: Human Rights Watch; 2017 (https://www.hrw.org/sites/default/files/report_pdf/usimmigration0517_web_0.pdf, accessed 6 April 2022).
314. Kellezi B, Wakefield J, Bowe M. *The impact of poor healthcare provision in UK immigration removal centres* [website]. London: The Conversation; 2021 (<http://theconversation.com/the-impact-of-poor-healthcare-provision-in-uk-immigration-removal-centres-161525>, accessed 6 April 2022).
315. van Hout MC, Lungu-Byrne C, Germain J. Migrant health situation when detained in European immigration detention centres: a synthesis of extant qualitative literature. *Int J Prison Health*. 2020;16(3):221–36. doi:10.1108/IJPH-12-2019-0074.
316. Kuehne A, van Boetzelaer E, Alfani P, Fotso A, Elhammali H, Khamala T et al. Health of migrants, refugees and asylum seekers in detention in Tripoli, Libya, 2018–2019: retrospective analysis of routine medical programme data. *PLoS One*. 2021;16(6):e0252460. doi:10.1371/journal.pone.0252460.
317. Nowak M, Krishan M. *The UN global study on children deprived of liberty: the role of academia in "making the invisible and forgotten visible"*. In: Kury H, Redo S, editors. *Crime prevention and justice in 2030*. New York: Springer; 2021.
318. Joint general comment No. 4 (2017) of the Committee on the Protection of the Rights of All Migrant Workers and Members of Their Families and No. 23 (2017) of the Committee on the Rights of the Child on state obligations regarding the human rights of children in the context of international migration in countries of origin, transit, destination and return. Geneva: Office of the United Nations High Commissioner for Human Rights; 2017 (<https://digitallibrary.un.org/record/1323015?ln=en>, accessed 6 April 2022).
319. Ehntholt KA, Trickey D, Harris Hendriks J, Chambers H, Scott M, Yule W. Mental health of unaccompanied asylum-seeking adolescents previously held in British detention centres. *Clin Child Psychol Psychiatry*. 2018;23(2):238–57. doi:10.1177/1359104518758839.
320. Durcan G, Stubbs J, Boardman J. *Immigration removal centres in England: a mental health needs analysis*. London: Centre for Mental Health; 2017 (https://www.basw.co.uk/system/files/resources/basw_71119-7_0.pdf, accessed 6 April 2022).
321. *Mental health in detention: written evidence submitted by Medical Justice to the Shaw Review*. London: Medical Justice; 2015 (<http://www.medicaljustice.org.uk/wp-content/uploads/2016/04/alHealthinDetention-SummarybyMedicalJusticeforShawReview.pdf>, accessed 6 April 2022).
322. Puthooppambal SJ, Ahlberg BM, Bjerneld M. "A prison with extra flavours": experiences of immigrants in Swedish immigration detention centres. *Int J Migr Health Soc Care*. 2015;11:73–85. doi:10.1108/IJMHC-10-2014-0042.
323. Venters HD, McNeely J, Keller AS. HIV screening and care for immigration detainees. *Health Hum Rights*. 2009;11(2):89–100. PMID:20845844.
324. Van Hout MC. Human rights violations, detention conditions and the invisible nature of women in European immigration detention: a legal realist account. *Int J Prison Health*. 2021;5. doi:10.1108/IJPH-03-2021-0023.
325. Essex R. Human rights, dual loyalties, and clinical independence: challenges facing mental health professionals working in Australia's immigration detention network. *J Bioeth Inq*. 2014;11:75–83. doi:10.1007/s11673-013-9493-0.
326. Puthooppambal SJ, Bjerneld M. Detainees, staff, and health care services in immigration detention centres: a descriptive comparison of detention systems in Sweden and in the Benelux countries. *Glob Health Action*. 2016;9(1):30358. doi:10.3402/gha.v9.30358.
327. *Addressing the health challenges in immigration and detention, and alternatives to detention: a country implementation guide*. Copenhagen: WHO Regional Office for Europe; 2022 (<https://apps.who.int/iris/handle/10665/353569>, accessed 9 May 2022).
328. Araissia H. Syrian women refugees in Tunisia: difficulties accessing economic and social rights. *Collect Rev Cienc Soc*. 2019;6(2):91–103. doi:10.15648/Coll.2.2019.6.

329. Chandler H, Boothby N, McNatt Z, Berrigan M, Zebib L, Freels PE et al. Causes of family separation and barriers to reunification: Syrian refugees in Jordan. *J Refug Stud*. 2020;33(2):371–89. doi:10.1093/jrs/feaa033.
330. Alsoudi A. The socio-economic impact of Syrian refugees on labor in Jordan: a case study on local communities in Mafrq governorate. *J Islam Thought Civiliz*. 2020;10(1):1–23. doi:10.32350/jitc.101.01.
331. Kusakabe K, Khuenta K, Hemsakul T, Veena N. Building a home away from home: housing choices of labor migrants in Thailand. *Migr Dev*. 2019;8(2):176–91. doi:10.1080/21632324.2018.1498255.
332. Good practices for migrant and refugee housing in Europe. Geneva: United Nations High Commissioner for Refugees; 2020 (<https://www.unhcr.org/bg/wp-content/uploads/sites/18/2020/10/Good-practices-housing-FINAL-EN.pdf>, accessed 6 April 2022).
333. Koh D. Migrant workers and COVID-19. *Occup Environ Med*. 2020 Sep;77(9):634–6. doi:10.1136/oemed-2020-106626.
334. Sianipar KD. Resettlement of former East Timorese refugees in East Nusa Tenggara. In: Friedberg E, Hilderbrand ME, editors. *Observing policy-making in Indonesia*. Singapore: Springer; 2017 (https://link.springer.com/chapter/10.1007/978-981-10-2242-5_5, accessed 6 April 2022).
335. Jamaluddine Z, Sahyoun NR, Choufani J, Sassine AJ, Ghattas H. Child-reported food insecurity is negatively associated with household food security, socioeconomic status, diet diversity, and school performance among children attending UN relief and works agency for Palestine refugees schools in Lebanon. *J Nutr*. 2019;149(12):2228–35. doi:10.1093/jn/nxz189.
336. Napier C, Oldewage-Theron W, Makhaye B. Predictors of food insecurity and coping strategies of women asylum seekers and refugees in Durban, South Africa. *Agric Food Secur*. 2018;7:67. doi:10.1186/s40066-018-0220-2.
337. VASyR 2020: Vulnerability assessment of Syrian refugees in Lebanon. Geneva: United Nations High Commissioner for Refugees; New York: United Nations Children's Fund; Rome: World Food Programme; 2020 (<https://reliefweb.int/sites/reliefweb.int/files/resources/VASyR%202020.pdf>, accessed 6 April 2022).
338. Laithy HE, Armanious D. Vulnerability assessment of refugees in Egypt: risks and coping strategies. Geneva: United Nations High Commissioner for Refugees; 2019 (<https://www.unhcr.org/eg/wp-content/uploads/sites/36/2021/01/Vulnerability-Assessment-of-Refugees-in-Egypt-Risks-and-Coping-Strategies-April-2019.pdf>, accessed 6 April 2022).
339. Migrant emergency food security report: Libya. Geneva: International Organization for Migration; 2020 (https://migration.iom.int/sites/default/files/public/reports/DTMLibya_MigrantFS_May2020_0.pdf, accessed 6 April 2022).
340. Khakpour M, Iqbal R, GhulamHussain N, Engler-Stringer R, Koc M, Garcea J et al. Facilitators and barriers toward food security of Afghan refugees residing in Karachi, Pakistan. *Ecol Food Nutr*. 2019;58(4):317–34. doi:10.1080/03670244.2019.1598982.
341. Carey E, Lindow O, Al Jawamees M, Al Refaay R, Teo F. Jordan: comprehensive food security and vulnerability assessment 2018. Rome: World Food Programme; 2019 (<https://reliefweb.int/sites/reliefweb.int/files/resources/70245.pdf>, accessed 6 April 2022).
342. Salti N, Ghattas H. Food insufficiency and food insecurity as risk factors for physical disability among Palestinian refugees in Lebanon: evidence from an observational study. *Disabil Health J*. 2016;9(4):655–62. doi:10.1016/j.dhjo.2016.03.003.
343. Logie CH, Okumu M, Mwima S, Hakiza R, Chemutai D, Kyambadde P. Contextual factors associated with depression among urban refugee and displaced youth in Kampala, Uganda: findings from a cross-sectional study. *Confl Health*. 2020;14(1):45. doi:10.1186/s13031-020-00289-7.
344. Maharaj V, Tomita A, Thela L, Mhlongo M, Burns JK. Food insecurity and risk of depression among refugees and immigrants in South Africa. *J Immigr Minor Health*. 2017;19(3):631–7. doi:10.1007/s10903-016-0370-x.
345. Henjum S, Caswell BL, Terragni L. "I feel like I'm eating rice 24 hours a day, 7 days a week": dietary diversity among asylum seekers living in Norway. *Nutrients*. 2019;11(10):2293. doi:10.3390/nu11102293.
346. Terragni L, Arnold CD, Henjum S. Food skills and their relationship with food security and dietary diversity among asylum seekers living in Norway. *J Nutr Educ Behav*. 2020;52(11):1026–34. doi:10.1016/j.jneb.2020.05.009.
347. Sauter A, Kikhia S, Sommoggy J, Loss J. Factors influencing the nutritional behavior of Syrian migrants in Germany – results of a qualitative study. *BMC Public Health*. 2021;21(1):1334. doi:10.1186/s12889-021-11268-9.
348. Steinhilber A, Dohnke B. Adolescent Turkish migrants' eating behavior in Germany: a comparison to nonmigrants in the home and host countries based on the prototype-willingness model. *Cultur Divers Ethnic Minor Psychol*. 2016;22(1):114–25. doi:10.1037/cdp0000042.
349. Topalovic T, Episkopou M, Schillberg E, Brcanski J, Jovic M. Migrant children in transit: health profile and social needs of unaccompanied and accompanied children visiting the MSF clinic in Belgrade, Serbia. *Confl Health*. 2021;15(1):32. doi:10.1186/s13031-021-00366-5.
350. Angeletti S, Ceccarelli G, Bazzardi R, Fogolari M, Vita S, Antonelli F et al. Migrants rescued on the Mediterranean Sea route: nutritional, psychological status and infectious disease control. *J Infect Dev Ctries*. 2020;14(5):454–62. doi:10.3855/jidc.11918.

351. Henjum S, Morseth MS, Arnold CD, Mauno D, Terragni L. "I worry if I will have food tomorrow": a study on food insecurity among asylum seekers living in Norway. *BMC Public Health*. 2019;19(1):592. doi:10.1186/s12889-019-6827-9.
352. Kim J, Lee S, Kim S. Comparisons of food security, dietary behaviors and nutrient intakes between adult North Korean refugees in South Korea and South Koreans. *Nutr Res Pract*. 2020;14(2):134–42. doi:10.4162/nrp.2020.14.2.134.
353. Aragón Gama AC, Infante Xibille C, Mundo Rosas V, Liu X, Orjuela-Grimm M. Relative severity of food insecurity during overland migration in transit through Mexico. *J Immigr Minor Health*. 2020;22(6):1118–25. doi:10.1007/s10903-020-01063-w.
354. Leidman E, Humphreys A, Cramer BG, Mil LT-V, Wilkinson C, Narayan A et al. Acute malnutrition and anemia among Rohingya children in Kutupalong Camp, Bangladesh. *JAMA*. 2018;319(14):1505–6. doi:10.1001/jama.2018.2405.
355. Glaser J, Pittore K, Roefs M. Evaluation of nutrition and income generation intervention (NIGI) Uganda: evaluation on the effect of NIGI on the refugee community in the Omugo refugee settlement in northern Uganda. Wageningen: Wageningen Centre for Development Innovation; 2021 (<https://edepot.wur.nl/546245>, accessed 6 April 2022).
356. Ghattas H, Choufani J, Jamaluddine Z, Masterson AR, Sahyoun NR. Linking women-led community kitchens to school food programmes: lessons learned from the Healthy Kitchens, Healthy Children intervention in Palestinian refugees in Lebanon. *Public Health Nutr*. 2020;23(5):914–23. doi:10.1017/S1368980019003161.
357. Sahyoun NR, Jamaluddine Z, Choufani J, Mesmar S, Reese-Masterson A, Ghattas H. A mixed-methods evaluation of community-based healthy kitchens as social enterprises for refugee women. *BMC Public Health*. 2019;19(1):1590. doi:10.1186/s12889-019-7950-3.



CHAPTER 3

Health status of refugees and migrants: a global perspective



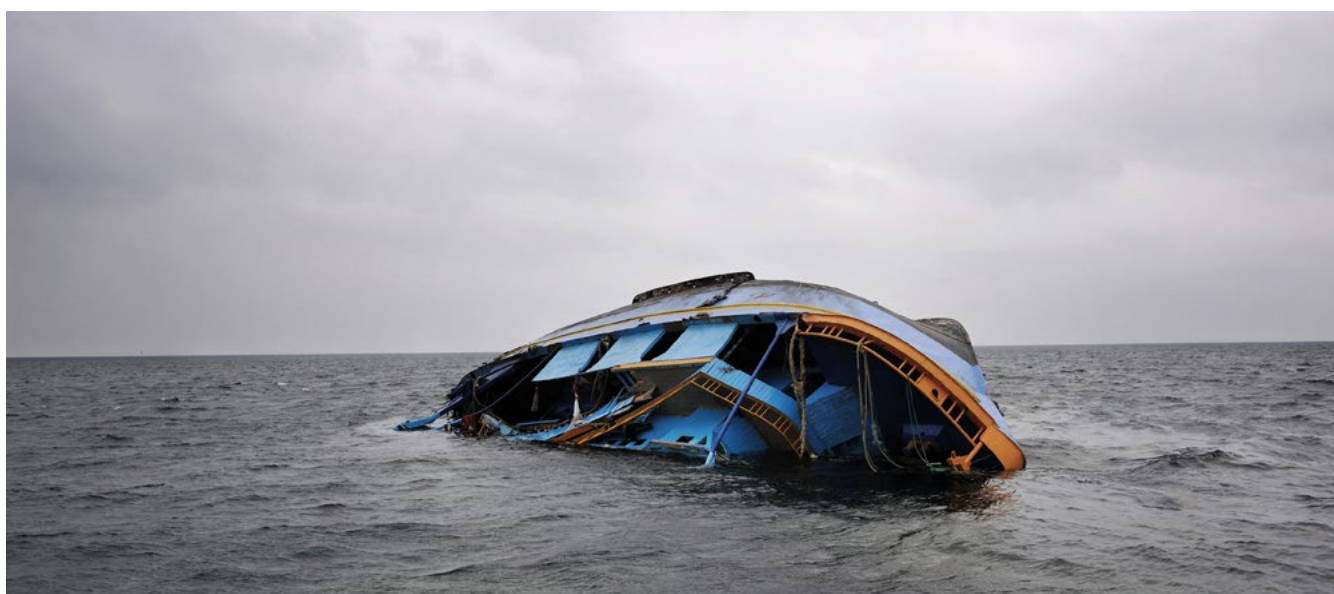
A Venezuelan living in Peru is working 12–13 hours per day to pay a high price for braving the COVID-19 crisis far from his home country, with challenges finding jobs and limited access to health services. © PAHO / WHO

3.1 Introduction

This chapter explores recent evidence from the six WHO regions to provide a global overview of the health status of refugees and migrants. A comprehensive review of the available literature globally has been conducted, and the results are presented in this report. A main finding of the review was the absence of studies presenting a global or regional synthesis. Comparing individual studies to reach regional or global conclusions also proved to be challenging, mainly because of the use of different indicators and population groups, which were often not clearly defined. The Annex summarizes the methodology and the types of study, disease categories and population groups included in the literature review. With these limitations, this chapter presents global patterns and trends in the health status of refugees and migrants. Wherever possible, it also presents examples from different countries and regions to highlight the global variation for each health challenge.

In spite of some limitations, some compelling conclusions can be made. At the broadest level of overview, being a refugee or migrant clearly carries significant health risks, to the extent that displacement or migration must itself be considered a determinant of health (Box 3.1), as shown in Chapter 2.

This report aims to support and promote the health of refugees and migrants in all of the known contexts in which they may find themselves. It focuses on the



The remains of a boat carrying migrants and asylum seekers that departed Libya but capsized on a sandbar north of the Tunisian islands of Kerkennah. Authorities estimated that 250 people tragically drowned in the incident. © Lindsay Mackenzie

human right to health, and highlights health-promoting public health interventions that will help to achieve this goal.

A major conclusion is that more and better-quality evidence is needed, with clearly defined study populations and outcomes and comparable data that reflect the global refugee

and migrant population. Information is also needed both on the health needs of refugees and migrants and on current and potential policies and responses. More research is also required to facilitate the creation and promotion of health among refugees and migrants, as indicated in the *Ottawa charter for health promotion* (1).

Box 3.1.

Death and disappearance: the Missing Migrants Project

Based on a variety of sources (e.g. from coastguards and medical examiners, media reports, nongovernmental organizations, and surveys and interviews of migrants), the International Organization for Migration (IOM) Missing Migrants Project estimates (as of 6 February 2022) that more than 47 296 people died on migration journeys worldwide between 2014 and 2021 (2).

Given the difficulties of data collection, these figures are best understood as a minimum estimate of the true number of deaths during migration.

IOM reports that more than 20 000 individuals disappeared during sea crossings and their remains have not been recovered, with more deaths likely to have gone undocumented. Nearly 8000 fatalities during migration have an unknown or mixed cause of death or disappearance, indicating the scarcity of robust, disaggregated data as well as the lack of official investigation into thousands of deaths.

Fatalities during migration occur across the world when people lack access to safe and legal mobility pathways. However, certain routes are known to be especially deadly for those on the move. For the 2014–2022 period, the largest proportion (23 485 out of 47 296) of deaths and disappearances documented during migration was recorded in the Mediterranean Sea: 80% of these deaths were recorded on the Central Mediterranean Route to Italy and Malta and involved the attempted sea crossing from Algeria, Libya and Tunisia and, to a lesser degree, from Egypt. An additional 5226 deaths were recorded during migration across the Sahara Desert, although the challenges of monitoring this vast area mean that it is extremely likely that far more deaths occurred than have been recorded. At least another 3661 people died attempting to cross the southern border of the United States from Mexico, with most deaths being linked to harsh conditions in the desert regions or to the hazardous Rio Grande river crossing. At least 2664 deaths occurred (of which 1176 were recorded in 2021 alone) on the overseas migration route to the Spanish Canary Islands, a destination for migrants from southern Morocco or western African countries.

A vast amount of work is needed to properly identify those who die during migration. No information is available on the country of origin or identity of more than 21 000 individuals recorded in the Missing Migrants Project database during 2015–2020.

Despite focusing on various diseases and health conditions, this chapter clearly shows that, as a population, refugees and migrants are innately healthy, and in some cases even healthier than the host populations. Some of the evidence indicates that refugees and migrants have an overall mortality advantage (i.e. lower death rates) for the most common diseases compared with the general population. However, as in the general population, there are certain subgroups among refugees and migrants whose high risk of poor health outcomes – and even of death and disappearance during migration (Box 3.1) – is certainly exacerbated by conditions during displacement and migration.

A significant number of migrant workers are engaged in so-called 3D jobs – dirty, dangerous and demanding – and are at greater risk of occupational accidents, injuries and work-related health problems than their non-migrant counterparts.

3.2 Occupational health

- Male migrant workers appear to be at a higher risk of occupational injuries, mainly because of their employment in high-risk industries, such as mining and construction.
- As well as workplace injury and death, occupational health problems most often include musculoskeletal, respiratory and mental health conditions, as well as other industry-specific hazards.
- Migrant workers are found to have less ability to exercise workers' rights to safe and healthy working conditions.
- Major data gaps are known to exist because of the informal nature of the sectors in which many migrant workers are more likely to work and because information on migratory status is often missing from relevant surveys.
- In data collected through various surveys where migrant workers might be included, information on migratory status is often missing.

ILO estimated that there were 169 million international migrant workers worldwide in 2019, representing around 5% of the global labour force (3). Although labour migration can be beneficial for workers by broadening their employment opportunities, migrant workers can also face hardship and increased vulnerability in their country of destination.

Migrant workers can frequently face negative health outcomes, resulting from workplace hazards, exposure, discrimination, lack of insurance (or loss of insurance when it is not portable), an absence of safety measures, or abuse in jobs in which they face higher risks to their safety and well-being (4–10). Compared with non-migrant workers, migrant workers rarely benefit from equal access to social security systems (11); low-skilled migrant workers, irregular migrants, refugees and asylum seekers face even greater barriers in accessing social protection (12).

Studies suggest that a significant number of migrant workers are engaged in so-called 3D jobs – dirty, dangerous and demanding (sometimes degrading or demeaning) – and are at greater risk of occupational accidents, injuries and work-related health problems than their non-migrant counterparts (13). Particularly if they come from low- and middle-income countries, they are often employed in low-wage or low-skilled occupations. Their jobs may be more dangerous than those of non-migrants, with higher physical demands and poorer environmental working conditions (14).

Additional concerns include the wide variation in conditions regarding social protection and legal status, such as temporary, permanent or sector-specific work, or no legal right to work (15). It is, therefore, essential to promote global frameworks such as the WHO global plan of action on workers' health (2008–2017) and to develop national policies to ensure the protection of migrant workers (16).

A recent meta-analysis of more than 17 million participants in 16 countries across five WHO regions (WHO African Region, WHO Region of the Americas, WHO European Region, WHO Eastern Mediterranean Region and WHO Western Pacific Region) investigated the use of health services by migrant workers (9). Compared with non-migrant workers, migrant workers were less likely to use health services and more likely to have had an occupational injury. Another study concluded that migrant workers faced substantial risk around work-related illness and injury, which is "critically overlooked in research and policy" (13).

The most commonly reported work-related health problems among refugee and migrant workers relate to musculoskeletal, respiratory and mental health, according to a study based in the WHO European Region (4). (Other industry-specific hazards are discussed in section 3.2.1.)

A study in Saudi Arabia comparing occupational injuries among insured Saudi Arabian labourers with those among insured migrant labourers, using data from a health insurance database, concluded that 93.5% of the injured were migrant workers and only 6.5% were from the host population; however, a notable limitation of this study is that migrant workers without health insurance, who may have experienced even higher rates of injury, were excluded (5).

Numerous other studies among migrant workers from China, Hong Kong Special Administrative Region, and the United States have shown more occupational fatalities among migrant workers compared with workers from host populations (6,10,17). For example, a study in China, Hong Kong Special Administrative Region, among migrant workers from Nepal reported cases of serious injury (including paraplegia) and workplace death, but postmortem documentation incorrectly attributed the deaths to natural causes (10).

A study conducted among Nepalese migrant workers in Malaysia, Qatar and Saudi Arabia reported poor health and safety regulations, intense productivity pressure and risky practices, such as working without safety equipment. These have led to severe injuries including lost fingers and permanent disabilities (7).

Research in the WHO European Region revealed mixed results: one study within the agriculture sector in Türkiye showed that male migrant workers have similar rates of work-related injury as the host population (18), whereas a study in Denmark reported a greater risk of occupational injuries for migrant workers compared with the host population (19).

Male migrant workers tend to have higher rates of workplace physical injury than female

migrant workers, reflecting traditional domains of work in which men tend to work in sectors with higher physical risk (20). A meta-analysis across 13 countries and territories of the WHO European Region included occupational health outcomes for 12 168 migrant workers (representing 25 low- and middle-income countries) employed in mostly unskilled manual labour (13). It found the pooled prevalence of having at least one occupational morbidity to be 47%, with most related to respiratory function, general health problems, mental health and injuries requiring medical care.

Enduring difficult or insecure work conditions, including exploitative treatment and unsafe situations, is related to poor psychosocial and mental health outcomes in studies across multiple regions (8,21–23). For example, some countries follow the approach of legally binding the migrant worker's visa or work permit to the employer or sponsor, which prevents the migrant from taking other employment or even from leaving the country without the employer's permission. Reports indicate that misuse of this system is putting the migrant workers in a vulnerable situation through practices such as withholding the migrant worker's passport or through the worker facing negative consequences for reporting abuse by the employer (24).

Evidence based on Canada's Temporary Foreign Worker Program has shown the impact of precarious employment and legal status on mental health: migrants living away from their families on temporary visas as part of the Canadian programme, especially those on agricultural visas, experience a higher prevalence of stressors that can affect mental health (25,26). Domestic care workers also experience deteriorating mental health and report that long working hours and housing conditions are the major contributors (27).

In a study conducted in Sweden, migrants who were temporarily employed were at increased risk of psychological distress compared with those who had permanent jobs or were self-employed (28).

Similarly, differences in exposures to workplace hazards depending on the country of origin are apparent in Australia: workers born in New Zealand were less likely to be exposed to any psychosocial hazard – for example, discrimination (Box 3.2), job strain, vulnerability and insecurity – but were more likely to be exposed to diesel exhaust and at least one carcinogen compared with migrants born in India and the Philippines (39).

In Chile, Bolivian migrant women in domestic work reported poor working conditions and long working hours, which increased their fatigue and feelings of hopelessness and may, in turn, increase the risk of mental health conditions (40). Returning to the home country may bring financial disadvantages and additional psychosocial stressors or rejection, or pressure to travel again to seek employment abroad (8,41,42).

3.2.1 High-risk and physically demanding sectors of industry

The high risk and physically demanding economic sectors of agriculture, construction and mining are major employers of refugees and migrants globally.

Evidence from the WHO European Region and WHO Western Pacific Region has shown that refugees and migrants, including seasonal workers, are likely to lack awareness of workplace hazards and to be exposed to pesticides, chemicals and workplace abuse (43,44). Farmworkers across the WHO Region of the Americas face various forms of pain and musculoskeletal disorders, as well as exposure to agricultural chemicals that cause respiratory

Box 3.2.

Workplace discrimination and marginalization

Refugees and migrants often report experiencing discrimination, isolation and marginalization in their workplaces. Migrant workers in Italy consistently reported self-perceived workplace discrimination (29,30). In Australia, a report described how migrants of Māori or Pasifika background were more likely to experience ethnic discrimination, bullying, and fair or poor current health compared with their Caucasian counterparts from New Zealand (31). In Saudi Arabia, workplace bullying in health care settings is 25% more prevalent towards migrant workers than towards their non-migrant counterparts (32). Migrants indicated numerous reasons why they may not make a formal complaint about their workplace treatment, with fear of losing employment and risk of deportation the primary concerns (23,33–37). Irregular migrants in Canada and the United States are often not formally employed and, therefore, lack written contracts and social protection. As a result, employers may use the threat of deportation as a disciplinary technique to ensure that migrants accept detrimental working conditions (33–37). Similarly, migrant workers in the Maldives reported the constant threat of deportation and made no formal complaints because of concerns over the precarious nature of their visa status, leading to harmful impacts on their physical and mental health (36). Official complaints mechanisms are essential because migrant workers, such as women in the WHO South-East Asia Region, have been provided false contracts, had their identity documents withheld and had difficulty accessing legal aid (38).

and dermatological problems, cancer and allergies, among other issues (45–47). In Mexico, agricultural labour migrants described poor diets and increased chronic diseases (cardiovascular and metabolic) related to long-term residence in isolated farming environments with poor living and sanitary conditions, and to a heavy workload (48).

Migrants in the Republic of Korea working in the agriculture, livestock and fisheries sectors, among the most physically demanding industries, have reported being unable to claim workers' compensation unless they were severely injured (49). A study on the risk factors for occupational injuries found that Chinese migrant workers in the Republic of Korea working in these industries reported a higher fatality rate from occupational injuries compared with Korean migrant

workers in China (4). Studies of migrant farmworkers in South Africa link an increased risk of HIV acquisition to factors including poorly implemented labour legislation, perceptions of anti-migrant sentiment, poor living conditions, inability to take time off to access health care, and psychosocial and behavioural determinants (50,51).

Construction is another sector that has many safety issues and often employs a refugee or migrant workforce. In an ILO study, Syrian refugee construction workers reported a lack of enforcement mechanisms or sanctions for violations of safety procedures (52). In Singapore, migrant workers in the construction, shipyard and process (manufacturing) industries reported trauma-related injuries and sometimes being discharged against medical advice (53). Another sector with a poor record

on health and safety is transportation; according to studies based in South Africa and Zambia, truck drivers face sleep disorders, unsafe roads, exposure to criminal activity and violence (both during their journeys and at border crossings), and other poor psychosocial outcomes (54,55).

The risks for refugee and migrant workers in the mining sector are highlighted in literature from the WHO African Region, in particular. Trends in mining employment have shifted in South Africa during the past 50 years: for example, there is increased employment of women and acknowledgement of the need to consider the risks of HIV, TB and silicosis in areas where mineworkers are recruited from and return to (56).

HIV prevalence was found to be high among mineworkers in Mozambique who had worked in mines in South Africa, and among their families; however, the study found that HIV prevalence was lower in households with higher levels of education (57). Another study into the feasibility and acceptability of, and adherence to, daily oral short-term pre-exposure HIV prophylaxis combined with access to HIV testing as a preventive intervention for partners of mineworkers reported positive results overall (58). Additional analysis in the Region has also shown that mineworkers have a significantly higher lifetime risk of developing and potentially transmitting TB after returning to their home communities, and face systemic barriers to accessing their rightful compensation for a lung disease claim linked to occupational risk factors (59).

Challenges remain relating to continuity of care for migrant workers who live with TB and/or HIV because moving for work, and the seasonality of work, impacts their ability to access appropriate medications in a sustained manner. Additional challenges include the accurate calculation of compensation, which requires documentation and identification verification processes (60).

Although not traditionally regarded as high-risk industries, the service and care sectors –including domestic workers and health care staff, of whom the great majority are women – frequently expose individuals to long hours and considerable hardship. Female labour migrants often work in domestic services and caregiving, areas in which musculoskeletal diseases and stress-related conditions persist, with evidence reported from China, Israel and Malaysia (61–65).

Refugees and migrants in the health sector often face discrimination both from other staff and patients. A cross-sectional study on workplace bullying in a hospital in Saudi Arabia found that bullying was more prevalent among expatriate workers such as migrant nurses (66.4%) than in national comparison groups (56.5%) (32). Harassment and discrimination among nursing teams in the United Kingdom's National Health Service were explored in a number of studies (66), with research revealing that migrant nurses in the United Kingdom face prejudice and discrimination when patients (or their family members) refuse to receive care from them or request a non-minority home-care nurse (67). Migrant health workers in Oman faced job security stressors related to the government's preference for employing health workers from the host population (68).

Across most regions, migrant sex workers face a range of abuses. Resulting from marginalization at the intersection of sex and gender, legal status and working in an often-criminalized industry, these abuses have repercussions for SRH, among other health areas (69–75). A qualitative study among male migrant sex workers in London reported high exposure to discrimination, social exclusion and inequalities in accessing health care (76). Social marginalization was linked to low levels of health literacy or use of health screening in migrant sex workers near the Guatemala–Mexico border (77).

3.2.2 Data challenges

Data on the occupational health outcomes of migrant workers remain scarce.

Migrants are more likely to work for small businesses, in the informal economy or as temporary or part-time workers. As such, they are often excluded from the legal frameworks of most countries that require notification and recording of occupational accidents and diseases (78). These circumstances reduce their inclusion in standard data collection systems, such as administrative records, as well as in establishment and household surveys.

Unless a household survey seeking to acquire occupational health data has been specifically designed to cover migrants living in different types of accommodation, information on migratory status may be missing, not appropriately captured or not captured from a sufficiently large sample of migrants to support separate estimates by migratory status.

These issues limit the possibility of analysing the situation of migrant workers without introducing biases resulting from non-coverage or a lack of precision.

As an illustration, the 2021 ILO occupational safety and health statistics database presents information – mainly based on administrative records from 79 countries and for a specific indicator, namely cases of non-fatal occupational injury – disaggregated by two commonly available variables: sex and economic activity (79). The same indicator from the same sources but disaggregated by migratory status is available only for 13 countries. As a result, there is insufficient evidence to inform policy-makers or to tailor health and social protection services to meet the needs of those vulnerable workers.

Administrative sources. Most of the data about occupational injuries are acquired from administrative sources, including insurance records, labour inspectorate records or records of employers' organizations, and other registers. Administrative sources are subject to undercoverage as in most cases they only cover injuries of workers who are employed in the formal sector. They are also subject to important underreporting as a result of workers fearing job loss, not being able to afford time away from work, and having limited or no access to social protection, or of the failure of employers to provide recording mechanisms, among other reasons (80). Migrant workers in precarious employment may also be more likely to experience those barriers to reporting.

Of the few (six) countries with data from administrative sources (Fig. 3.1), the incidence of non-fatal occupational injuries (i.e. new cases of non-fatal occupational injuries during a reference period per 100 000 workers in the reference group) was higher among migrant workers in four of the six (79). In the two other countries, fewer cases of non-fatal occupational injuries were reported by migrant workers compared with their non-migrant counterparts. A possible explanation for this inconsistency is that, in some countries, migrants tend to report work-related illness or injuries less often than their non-migrant counterparts (81). Another factor affecting these contradictory findings may be that migrants are insufficiently captured in standard administrative data collection and reporting systems. That could be the case for irregular migrants or migrants in low-skilled jobs or the informal sector, who are often excluded from social protection frameworks, not registered in the national system or worried about their precarious migratory status (12,19,82).

Migrant workers may also often avoid seeking medical care for fear of being dismissed from work due to injury or absence and many do not want to give information to the authorities for fear of repercussion. This reluctance to access health services or be included in surveys also poses challenges to collecting data and points to broader structural health issues.

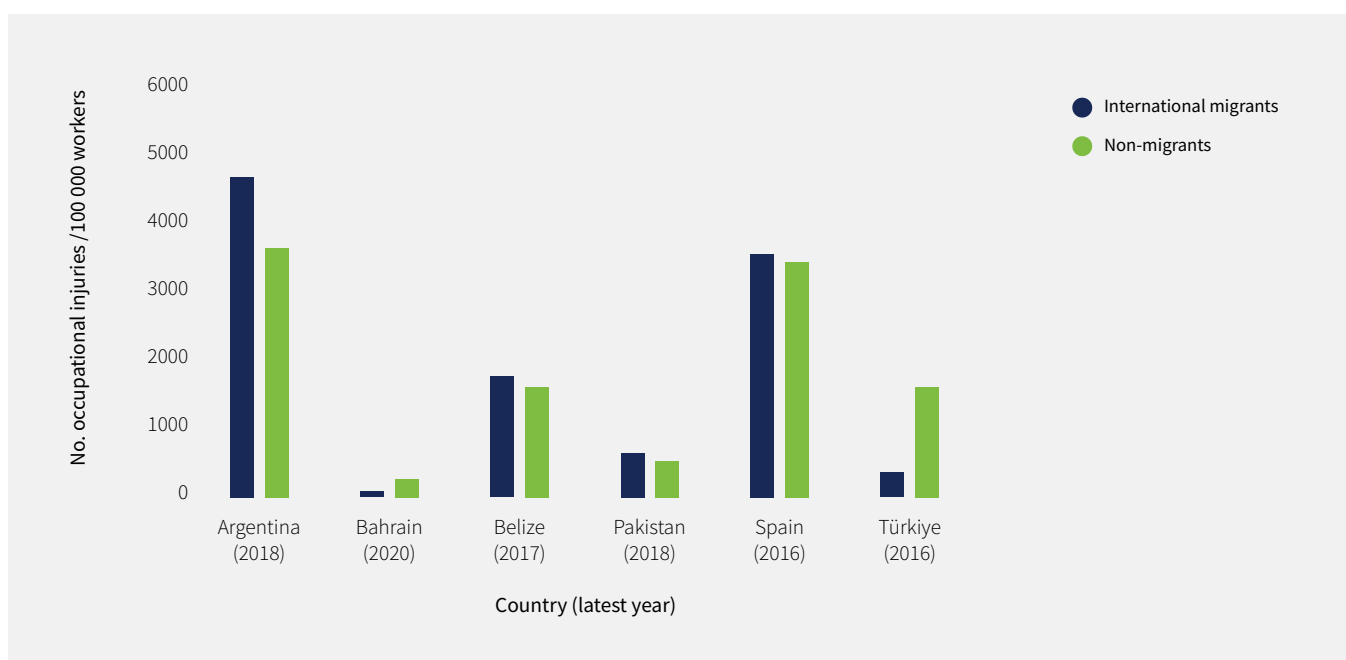
Household surveys. Household surveys may contain relevant/disaggregated data, allowing comparison among various types of worker, including migrant workers, and providing information on work-related illnesses or injuries. However, unless the survey has been specifically designed to ensure adequate coverage of migrants, standard household surveys may also suffer from problems of misrepresentation and underreporting (covered in more detail in Chapter 5).

This issue can be particularly important in countries where migrant workers may be

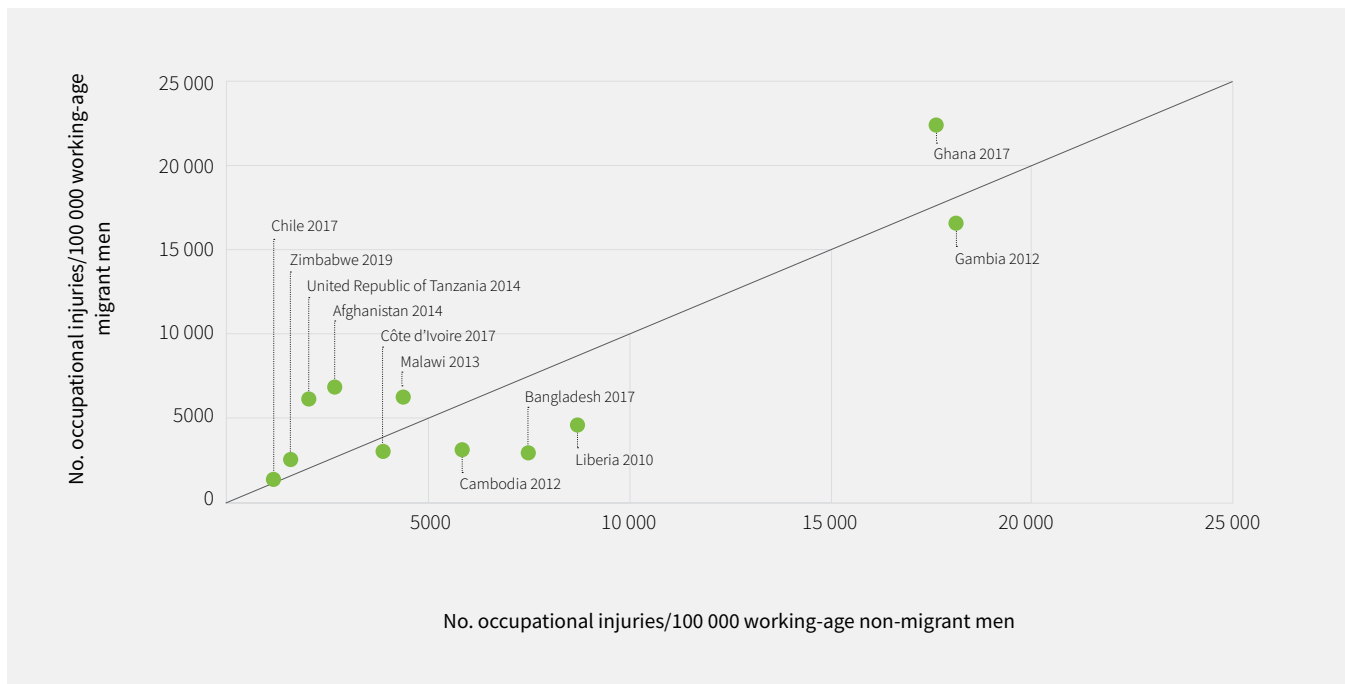
concentrated in selected areas that are not sufficiently covered by household surveys or when migrant workers live in collective households and institutions, such as boarding houses, dormitories or worker camps. Additionally, relying on proxy respondents may not be adequate for collecting data on the injuries, accidents and other adverse health outcomes experienced by migrant workers. These issues limit the analysis of the situation of migrant workers: bias may be introduced because of non-coverage by or a lack of precision from household surveys (Fig. 3.2).

Sex and migratory status. In the majority of countries, cases of non-fatal occupational injuries are not disaggregated by migratory status (Fig. 3.1, Fig. 3.2). Since the number of migrant workers or employed migrants for those countries is not available, the working-age population was used to calculate the number of non-fatal occupational injuries

Fig. 3.1. Incidence of non-fatal occupational injuries by international migratory status



Source: ILO Department of Statistics (79).

Fig. 3.2. Cases of non-fatal occupational injuries in working-age men

Source: ILO Department of Statistics (79).

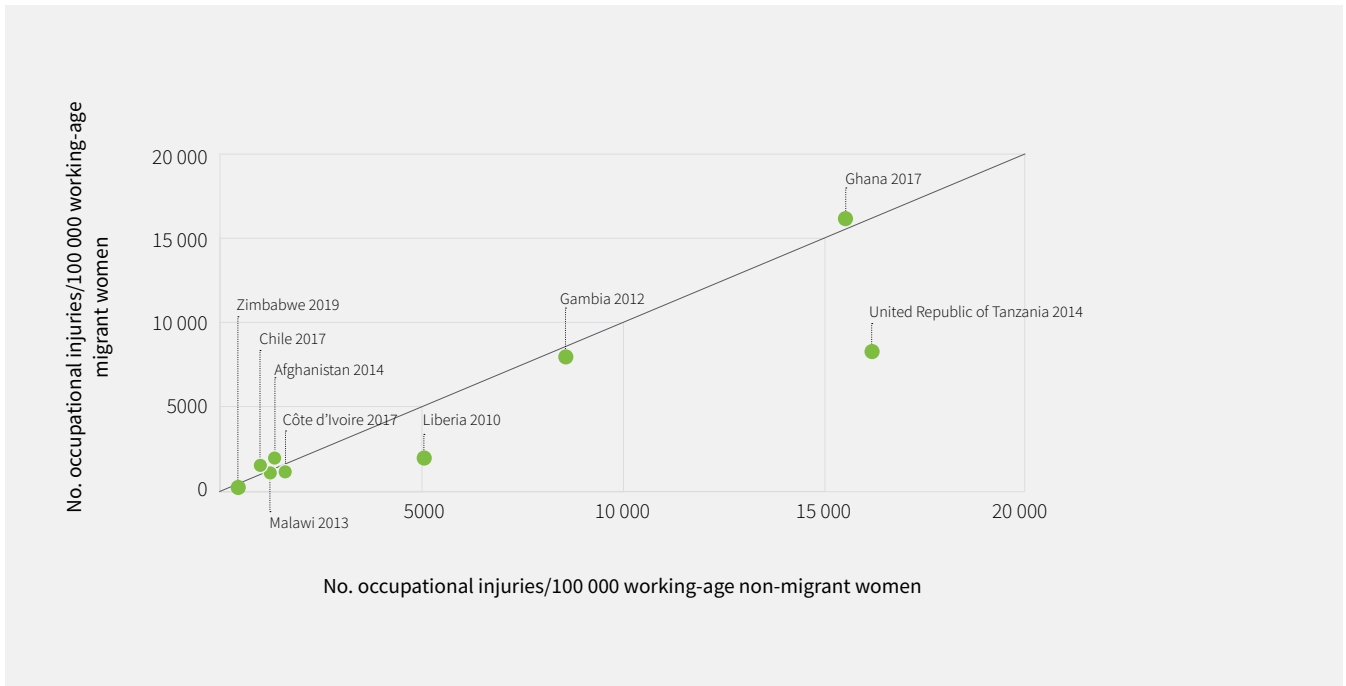
per 100 000 people of working age by sex and migratory status. In more than half of the reporting countries, migrant men are less likely to have reported non-fatal occupational injuries compared with non-migrant men.

Household survey data show the same results as some administrative sources and, as indicated in the literature, do not systematically indicate a higher prevalence of occupational injuries among male migrants compared with their non-migrant counterparts (83). It is important to note that the number of countries with available household survey data is small, and that these findings based on a few selected developing countries may not be representative for the rest of the world. Among women, there is little difference between migrants and non-migrants in reporting non-fatal occupational injuries (Fig. 3.3) (79). A possible explanation for this could be that women in general, including

refugees and migrants, may work in safer industries and occupations and may, therefore, be at a lower risk of occupational accidents (80). At global level, the latest ILO estimates show that a large majority of female migrants (80%) work in services, whereas 37% of their male counterparts work in industrial sectors, such as construction and mining, two sectors generally recognized as highly hazardous for workers (84–86).

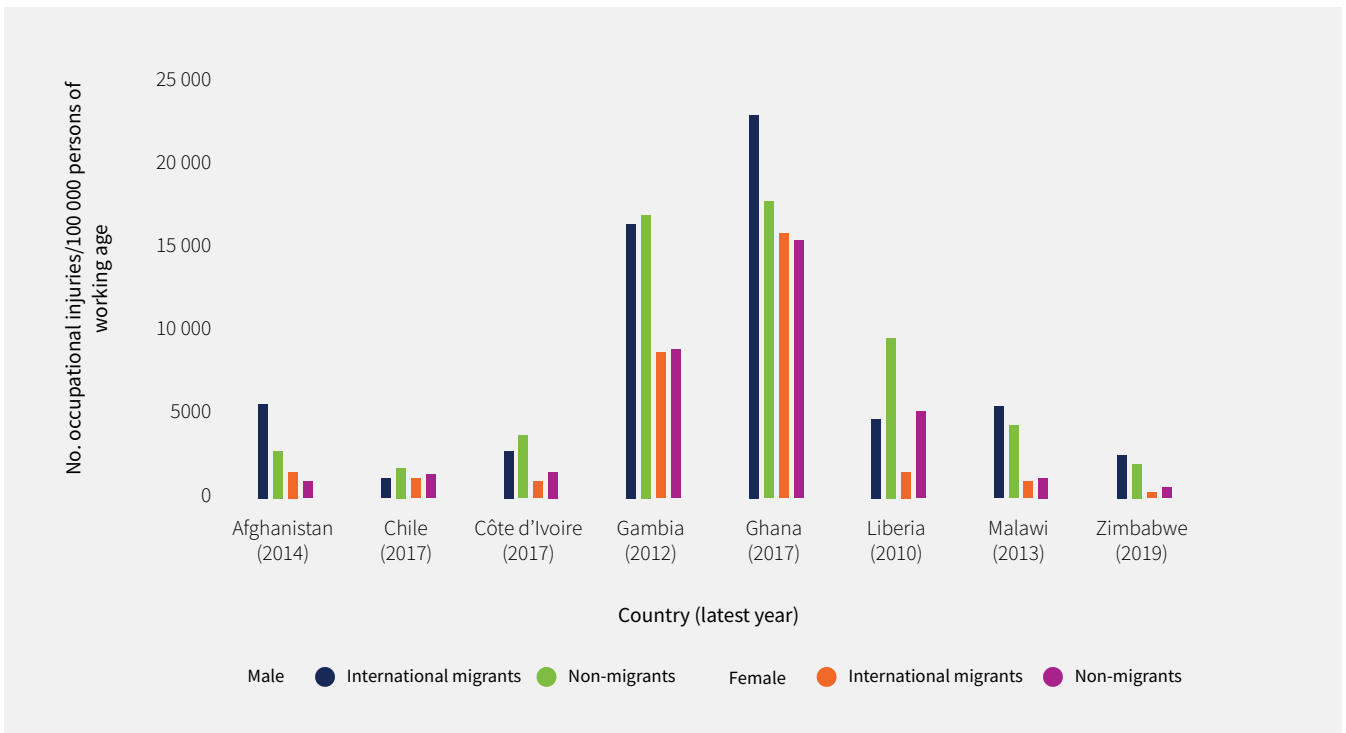
A detailed comparison of the data for both sexes shows that, regardless of migratory status, fewer women have experienced occupational injuries or accidents compared with men in all countries for which data are available (Fig. 3.4). Additionally, some higher-risk male-dominated industries are also sectors where migrant workers reside in camps, workers' dormitories or hotels. For example, this is common in agriculture, construction, fishing, long-distance transportation and mining (84,86,87),

Fig. 3.3. Cases of non-fatal occupational injuries in working-age women



Source: ILO Department of Statistics (79).

Fig. 3.4. Cases of non-fatal occupational injuries in people of working age



Source: ILO Department of Statistics (79).

sectors in which many male migrants are often excluded from the scope of surveys.

Exploring the occupational health outcomes of migrants is challenging because relatively small-scale studies report a higher prevalence of occupational injuries among migrants than non-migrants, whereas larger surveys do not always show the same results (19,80,83). This raises questions about the data quality and reliability of surveys that are not specifically tailored to gathering data about occupational health outcomes for migrant workers.

Mainstreaming occupational health and safety questions in surveys of migrants could help to improve the availability of data. The same questions could also be integrated into labour force surveys or other household or individual surveys with a strong labour component that are implemented on a more regular basis. However, the primary challenge is to ensure proper coverage of the migrant population in the sample, according to national specificities. Finally, strengthening legal and statistical frameworks at the national and international levels to improve the overall quality of administrative data could also contribute to providing more and better-quality statistical evidence about the occupational health of migrants.

3.3 Sexual and reproductive health

- Awareness and use of SRH services (including contraception and general sexual education) by some refugees and migrants are low compared with the host population.
- Refugees and migrants, especially women but also men, frequently experience sexual and gender-based violence during displacement and after arrival.
- Some refugee and migrant groups continue to practice FGM and some evidence shows acceptability of the practice decreases over time in host countries.
- Lower levels of knowledge of STIs and increased risks among some groups of refugees and migrants are often associated with limited access to information.

3.3.1 Contraception and family planning

Family planning allows people to have their desired number of children (which may be none) or control the spacing of pregnancies. It is achieved through the use of contraceptive methods and the treatment of infertility (88).

Fertility and childbearing are considered central to the identity of migrant women; their perspectives on contraceptives, often shaped by religion, culture and education, influence the type of contraceptive used or whether they are used at all. However, as shown in this section, in some settings awareness and utilization of SRH services are low among refugees and migrants compared with host populations, often due to a lack of health literacy and awareness, legal status issues and language barriers.

Low levels of awareness and use of contraceptives are reported for refugee and migrant groups across all WHO regions (89–94). Research from the WHO African Region (95–97), WHO South-East Asia Region (90,98,99) and the WHO Western Pacific Region (100,101) highlights the need for early, comprehensive sexual education about various topics, including contraception and family planning, for refugee and migrant groups.

The literature emphasizes that education (from peer educators) should be offered to all age groups but particularly to adolescents and their parents and, where possible, be accompanied by free SRH services. A study of refugees and migrants aged 10–16 years in Thailand explored how the impacts of displacement have shaped their perspectives on SRH and their awareness of puberty or family planning. The results highlight a need for the involvement of peers and key influential adults as the most effective way to reach these vulnerable adolescent groups (102).

In a cross-sectional study conducted among a sample of 260 refugee adolescent girls in Uganda (mostly from the Democratic Republic of the Congo), 31.2% reported ever having used an SRH service, mostly to test for HIV or to seek help for menstruation; this was a much lower proportion than for adult refugee women in the same settlement (58%) (89).

In Australia, refugees and migrants from Eritrea and Sudan acknowledged that social and cultural influences are a barrier to discussing issues around SRH and contraception; however, women across different age groups reported an openness to shifting away from the traditional attitude of avoiding discussion of various SRH topics within familial environments (103).

A survey in Ghana showed low levels of contraceptive use (12%) among female

Sexual violence against refugee and migrant women can also be linked to both their arrival and their post-migration experience. Exposure to sexual violence among male refugees and migrants is a potentially understudied issue.

adolescent refugees, although awareness was relatively higher (65%); this indicates a gap between awareness and use (104).

A cross-sectional study in Eritrean refugee camps in Ethiopia recommended improving awareness and use through increasing access to contraceptives in refugee-hosting settings to allow refugee women to make informed choices (105). In the WHO European Region, female refugees and migrants are reported to be at a high risk of reproductive health problems and unmet contraceptive needs than women in the host population, according to studies in Germany and the Netherlands (106,107).

A lack of knowledge or information about where to receive contraception counselling (and HIV testing) among refugee and migrant women reflects a missed opportunity, as several WHO European Region countries have free access to contraception and other SRH services (94,106–109). In the Region, the use of modern contraception is increasing among the host population (110); however, based on the most recent data, unmet family planning needs continue to be an issue for migrant women (94,109).

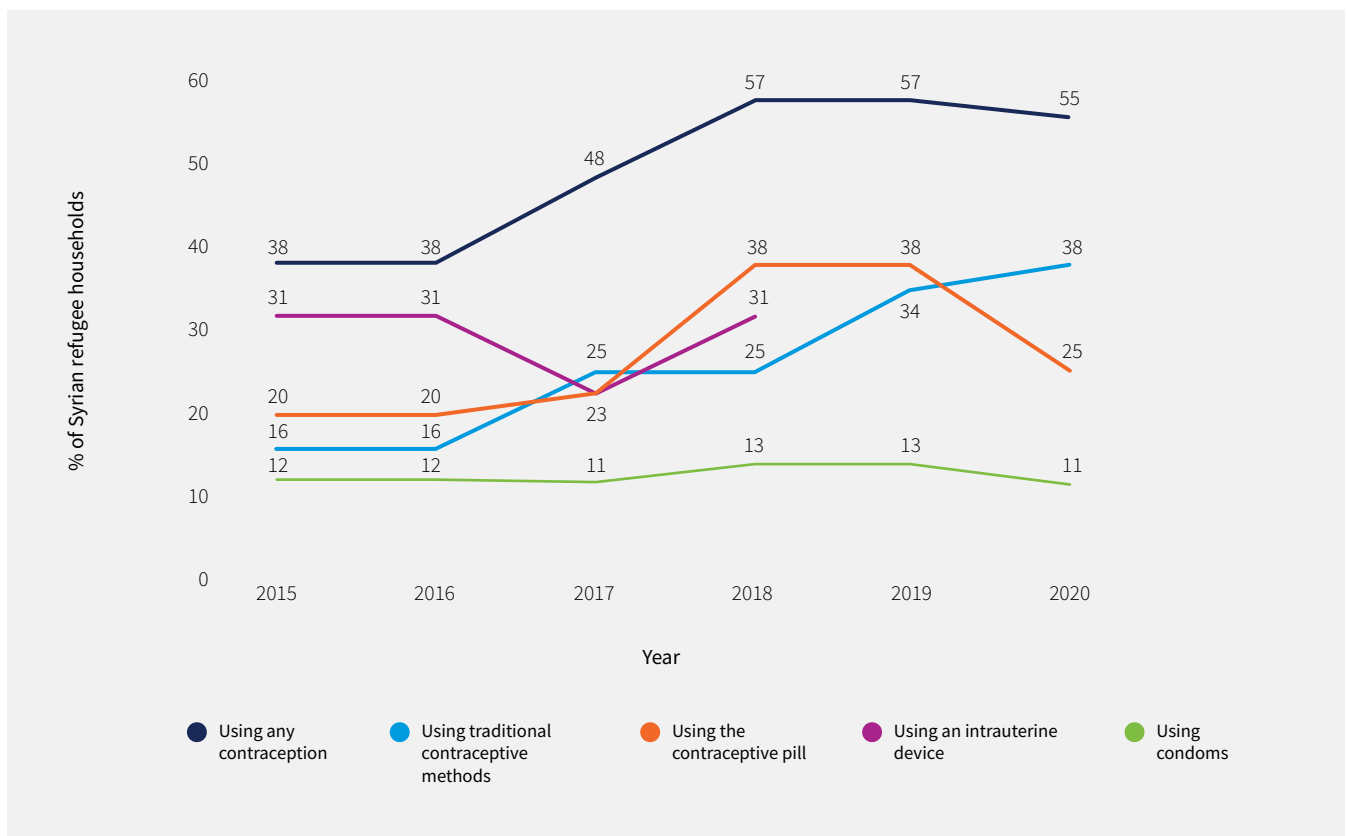
In the United States, data show that refugee and migrant women are less likely to use the most effective contraceptive methods, including oral contraceptives, injectables, patches and vaginal rings, compared with the host population (93). In Jordan, Syrian women were less likely to use modern contraceptive methods (which are more effective than traditional methods) compared with Jordanian women (111,112).

Fig. 3.5 demonstrates the low but increasing levels of use of some contraceptive methods by Syrian refugees in Lebanon, with traditional methods (rhythm/calendar and withdrawal) being the most common as of 2020 (113–118). The proportion of households reporting condom use remained relatively stable from

2015 to 2020, while the use of traditional methods increased considerably during this period. With regards to contraceptive pills, households reported a steep decline in use between 2019 and 2020, following years of steady increase. Overall, the proportion of Syrian refugee households in Lebanon reporting the use of any type of contraception increased from 38% in 2015 to 55% in 2020.

A cross-sectional study conducted in the United Arab Emirates reported a higher prevalence of contraception use among migrants (77.3%) compared with the host population (54.3%) (119). This highlights the need to interpret study results in relation to the research context, that is, cultural context and type of migrants.

Fig. 3.5. Proportion of Syrian refugee households in Lebanon reporting the use of various types of contraceptive method, 2015–2020



Source: UNHCR (112–117).

Similarly, levels of use of modern contraceptive methods are low among refugee and migrant women in the WHO Western Pacific Region; many opt for more traditional methods because of concerns about the potential side-effects of modern methods such as hormones, limited knowledge of contraceptive options and unsupportive sexual partners (120–124).

A survey in Australia noted that Sri Lankan migrants were less likely to use long-acting reversible contraception (8.5%) and permanent contraceptive methods (2.9%) compared with the host population (14.9% and 28.7%, respectively) (122). Numerous studies across the WHO Region of the Americas (e.g. in Canada (125), Costa Rica (126) and Uruguay (127)) demonstrated the importance of culturally tailored family planning programmes, as well as the provision of contraceptive options according to the preferences and decision-making capacities of refugees or migrant groups of different ethnicities or countries of origin. In Uruguay, African–Caribbean migrants may encounter methods of contraception not widely used in their country of origin (127); in the study in Canada, some migrant women viewed the use of contraceptives as forbidden or dangerous (125).

The literature on early childbearing after marriage at a young age among some refugee and migrant groups was reviewed. In Jordan, a recent survey of women and girls aged 15–29 years found that 28% of those from the Syrian Arab Republic and 12% of those of other nationalities had begun childbearing, compared with 3% of Jordanian women and girls (112). However, this might represent a continuation of practices that existed prior to displacement (128).

Several WHO regions – WHO Region the Americas (129), WHO South-East Asia Region (130), WHO European Region (131,132) and

WHO Western Pacific Region (133) – have documented how the number of unintended or unwanted pregnancies may increase during displacement or migration circumstances for various reasons, including a lack of access to services and increased sexual violence (section 3.3.3), leading to unsafe or self-induced abortions among some refugees and migrants.

A study from eastern Myanmar concluded that the need for SRH services in complex and fragile displacement settings is greater than in the more stable settings in the country because of the link between conflict or political violence and increased risks of SGBV, particularly for women and girls (134). The study showed that migrant women in these fragile contexts experience SRH challenges, especially along border regions, such as the risk of trafficking along the Myanmar–China border, limited services (particularly for trafficked women) and the risk of sexual violence in remote, peri-urban areas in Thailand. Economic push-and-pull factors are reported to influence the migration of women in the region, despite the precarious context of political transition.

3.3.2 Sexually transmitted infections

Reviews of the available data on STI screening in refugees and migrants highlight huge differences between nationalities and across regions and subregions globally (see section 3.7.1 for more detailed information on HIV/AIDS).

According to one study, Mexican migrant women in the United States are less likely to have an STI overall than non-Hispanic white and Black women, as measured at the time of giving birth (135). In studies conducted among migrants in Thailand (136) and refugees in Uganda (95), the findings indicated lack of awareness of STI risk, transmission and clinical symptoms, as well as the need to address

stigma and improve access to testing for refugee and migrant groups. Compared with Nepalese women in the same geographical area, Bhutanese refugees in Nepal had overall low levels of awareness of STIs (137). In addition, the same study concluded that refugee women were less likely to know that HPV infection, a known STI, is the cause of cervical cancer.

Risk factors for poor SRH (e.g. lower levels of condom use, fewer sexual health check-ups and less access to information about safe sex) are associated with displacement or migration for various reasons related to economic and psychosocial stressors (e.g. selling or exchanging sex for assistance, loss of social support and loneliness). Such risk factors have been documented among all sexes and genders in Australia (75), Thailand (138) and Zambia (55).

Evidence from reports on migration and health in border areas across Central and South America highlights the influence of the migration process on exposure to STIs, including risk factors related to discrimination, sex work, violence and human trafficking, mainly for women (139,140). (See Chapter 2 for a discussion of these and other determinants of risk.)

3.3.3 Sexual and gender-based violence

The research evidence indicates that high levels of SGBV are experienced by refugees and migrants, particularly women and people in vulnerable situations such as migrant workers with low income (130,141–143). Studies among refugees in eastern African countries and in the WHO Eastern Mediterranean Region report increased IPV and forced pregnancy related to life stressors in host country settings, as well as high rates of SGBV related to escaping armed conflict (143–145).

Literature from the WHO Eastern Mediterranean Region describes increases in both generalized SGBV and marriage violence during times of war or conflict, with a link between early marriage and IPV (146,147). SGBV and IPV are also experienced by migrant women from Latin America in the United States, linked to cultural patterns in relation to the country of origin as well as to changing power dynamics within the relationship related to migration and acculturation (142,148).

Sexual violence against refugee and migrant women can also be linked to both their arrival and their post-migration experience. This includes abuse and sexual assault or exploitation experienced by migrant women workers or domestic workers, as cited in studies in the WHO Region of the Americas (139,149), WHO European Region (150,151) and WHO Eastern Mediterranean Region (152). The migrant women often have increased vulnerabilities because of their legal status, SES or housing insecurity.

In the WHO Region of the Americas, migrant women in particular experience SGBV as well as physical violence and IPV during transit through Mexico to the United States (153–155). These findings indicate that female migrants from Central America are at a higher risk of violence compared with their male and Mexican migrant counterparts.

In a context in which the risk for migrant women of sexual violence, rape and transactional sex is high, it is widely assumed that there is major underreporting of SGBV, particularly in a social context marked by impunity (154), stigma and the normalization of violence (156).

Migrants in transit through Mexico to the United States are at risk of violence, including SGBV, and the dynamics of undocumented

migration provide multiple opportunities for this. A study of Central American migrant women in transit, many of whom cited violence as their cause for migration, indicated that social support from institutions (e.g. migrant shelters), people (so-called Good Samaritans) and their families was key to supporting their journey to the United States border (157). It also found that these women possessed significant internal strengths, including religious beliefs, courage, endurance and goal setting that helped them in their successful journeys.

There is a high risk of all forms of sexual violence for men and women during forced displacement and on dangerous migration routes. The Central Mediterranean Route through Libya to Europe is known to have a high risk of physical and sexual violence committed by smugglers, local authorities and police, as well as by other people unknown to the survivors (158,159).

A United Nations Children's Fund (UNICEF) report of 2017 noted that 72% of detected female victims of trafficking reported sexual exploitation on the Central Mediterranean Route (159). A cross-sectional study conducted in a reception centre in France in 2017 surveyed adults older than 18 years; it found that more than half of the women (53%) and 18% of the men reported sexual violence along the route (141).

Exposure to sexual violence among male refugees and migrants is a potentially understudied issue. Sexual violence against men and boys was reported in research in the WHO South-East Asia Region, especially in refugee camp settings, and included violence inflicted on genitals, forced witnessing of sexual violence, and rape (160).

3.3.4 Female genital mutilation

In 2021 UNICEF estimated that at least 200 million girls and women had undergone FGM in more than 30 countries (161). FGM has no health benefits and can lead to various health complications, including pain during intercourse or the birth process, postpartum complications and pelvic floor symptoms that affect the daily life of women (162). Although FGM is illegal in several countries, including many in the WHO European Region (163), refugee and migrant groups whose countries of origin still widely practice FGM may continue to practice it in their host country, for example as indicated in a study conducted in Saudi Arabia (164).

In high-income host countries, refugee and migrant women may not seek various SRH services because of feelings of shame or stigma around FGM and discrimination from providers (163). Some evidence from Norway and Sweden indicates that refugee and migrant women with a longer period of residence in a host country where the practice is not legal or culturally accepted and those with greater exposure to awareness campaigns and counselling are more likely to reject the practice (165,166).

3.4 Maternal and child health

- Access to MCH services among refugees and migrants is often difficult compared with access for women of the host country, due to barriers such as clinic fees, lack of awareness, education and cultural beliefs. This includes low levels of attendance for antenatal care (ANC). Refugee and migrant women are at a higher risk of negative outcomes during pregnancy and delivery, including mortality.
- Refugee and migrant women and children have higher rates of anaemia, and there is an increased risk of both anaemia and malnutrition in some camp-based settings.
- Refugee and migrant women face various challenges with infant-feeding practices, including exposure to poor-quality substitutes for breast milk.

MCH refers to the health of women during pregnancy, childbirth and the postnatal period, and the promotion of the full potential for health and well-being for mothers and children. Improvements in MCH remain an important goal, as included in the SDGs as Targets 3.1 (by 2030, reduce the global maternal mortality ratio to less than 70 per 100 000 live births) and 3.2 (by 2030, end preventable deaths of newborns

and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1000 live births and under-5 mortality to at least as low as 25 per 1000 live births).

Although important progress has been made over the last two decades, the numbers of women and children dying remains unacceptably high. Addressing inequalities that affect health outcomes, especially sexual and reproductive health and rights and gender issues, is fundamental to ensuring all women, including refugee and migrant women, have access to respectful and high-quality maternity care.

Available evidence from this review indicates relatively poorer knowledge of, and access to, MCH services on behalf of refugee and migrant mothers and children and a higher risk of poor outcomes.

3.4.1 Access to antenatal care

In the WHO Eastern Mediterranean Region, refugee and migrant women reported attending fewer ANC appointments compared with women of the host country. For example, in a study among refugee women in Jordan from the occupied Palestinian territory, including east Jerusalem, almost 30% attended fewer than four ANC appointments; younger age, high pregnancy-risk status and a lower number of gynaecological consultations were reported as significant predictors associated with inadequate access to ANC (167). Similarly, a representative survey conducted in the occupied Palestinian territory, including east Jerusalem, found that ANC coverage was lower for refugees (88.2%) compared with non-refugees (95.9%) (168). A study focusing on Syrian women in Jordan reported that 82% of Jordanian women attended at least seven ANC appointments compared with only 62% of Syrian women (112).

Refugee and migrant children are particularly vulnerable to underweight issues, undernutrition and wasting.

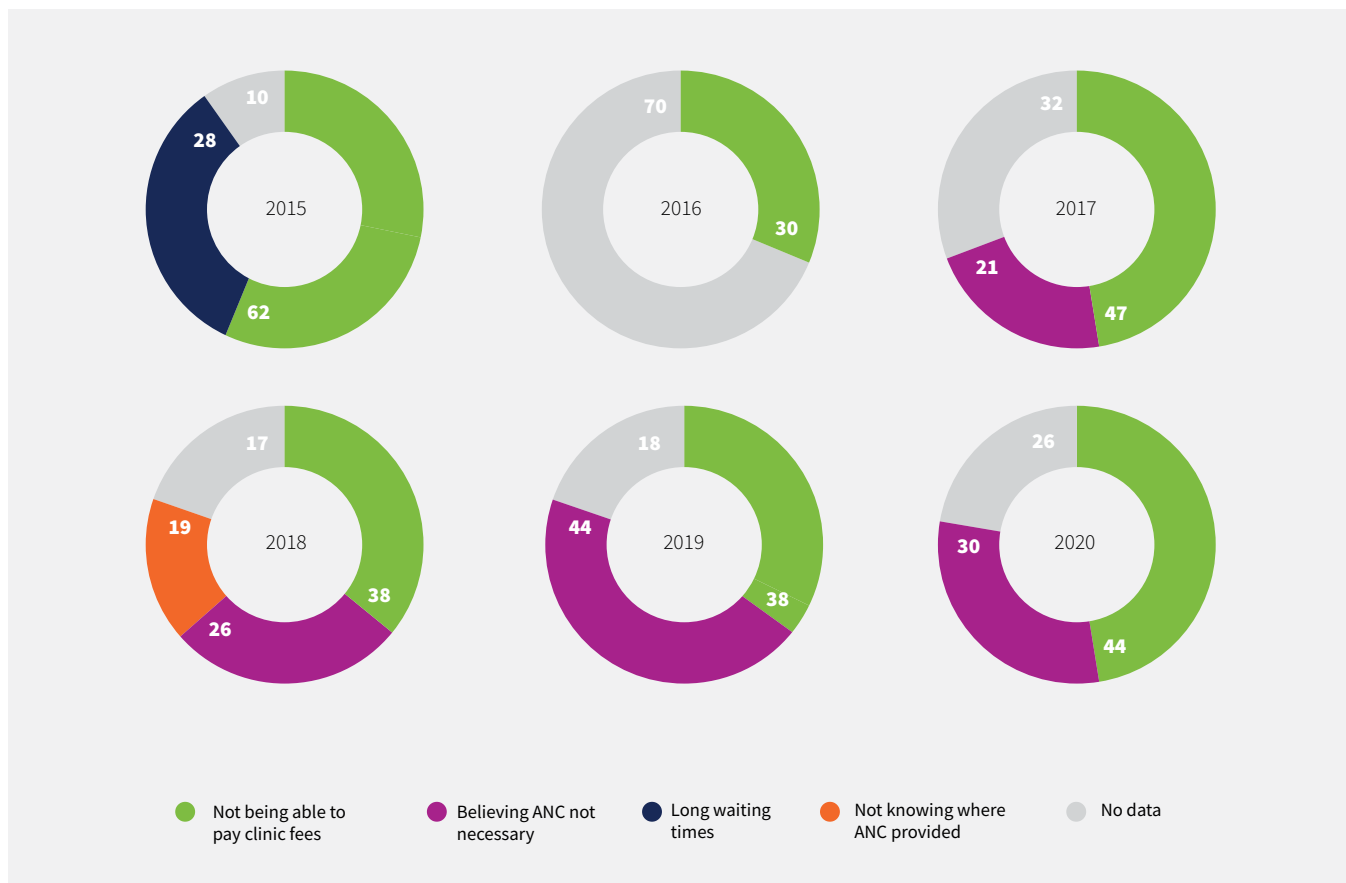
Data collected among Syrian refugees in Lebanon showed that the most common reasons for not accessing ANC were primarily related to payment of the clinic fee, followed by the belief that such services were not necessary (113–118). Fig. 3.6 shows these and other common barriers to accessing ANC services.

Failing or deciding not to attend ANC services has also been reported among migrant populations; research from the WHO African Region suggested that low ANC attendance in Johannesburg, South Africa, may be related to the predominantly migrant population in the city (169). A study in northern Uganda found that, although there appears to be equal access to and quality of maternal health care for

refugee and host community mothers, refugee mothers felt less satisfied with how they were treated during ANC and were more likely to report discrimination by health care staff (170). In Italy, pregnant migrant women were more likely than local women to receive fewer than five gynaecological examinations (16.3% versus 8.5%), have their first examination after the 12th gestational week (12.5% versus 3.8%) and receive fewer than two obstetric ultrasounds (3.8% versus 1.0%) (171).

In the WHO European Region, migratory status and level of education were found to be associated with ANC uptake; a study in Germany determined that being a first-generation migrant and having a lower level of education

Fig. 3.6. Most common reasons (%) for not accessing ANC services reported by Syrian refugees in Lebanon, 2015–2020



Source: UNHCR (112–117).

were associated with a lower uptake of ANC services (172). Whether ANC is accessed is also associated with the level of awareness of SRH; women in the WHO European Region with experience of post-migration ANC are more likely to have been tested for HIV (173).

In the WHO Region of the Americas, studies from Canada and the United States show both delayed and suboptimal ANC among refugees and migrants: in the United States, refugees and migrants have a prevalence of delayed ANC of 20.6% and 15.0%, respectively (174–176).

3.4.2 Obstetric, postpartum and postnatal health and access to care

Among refugee and migrant women, there is some evidence that migratory status may improve their access to postnatal care compared with host country women (174). However, postpartum and postnatal health care received by the refugee and migrant mothers and their children and the health outcomes are not consistently better than the care received by their peers in the host population. For example, Afghan refugee and migrant women are reported to receive little information about postnatal problems and the need for routine care (177). Other child health problems highlighted for refugee children include low birth weight; low levels of vitamins A and D; low AGPAR score (appearance, pulse, grimace, activity and respiration); and congenital heart disease (178,179).

A meta-analysis of 13 studies demonstrated that refugee and migrant women in western European countries have double the risk of dying during or after pregnancy compared with host country women (180). Various studies from the WHO Region of the Americas show that refugee and migrant women are more likely to undergo an unplanned caesarean section, among other adverse birth outcomes

or postpartum complications (181–183). Studies of asylum seekers in the Netherlands revealed a statistically significant higher rate of perinatal mortality (3.2%) compared with the host population (0.6%), independent of parity, birth weight or gestational age at birth, as well as a higher rate of intrauterine fetal death (2.3% versus 0.2%) (184).

In the WHO Western Pacific Region, a study of refugee and migrant women in Australia found higher rates of stillbirth, perinatal mortality and repeat abortion compared with the host population (185); these differences were attributed to delays in accessing PHC and hospital-based care, important to the optimization of MCH outcomes. Another study in Australia found that late commencement of ANC, underutilization of interpreting services and midwife-only intrapartum care were associated with an increased risk of stillbirth among migrant women from Africa and India (186).

A further study from Australia linked migration to birth outcomes, as refugee and migrant women were more likely to give birth to children who were small for their gestational age (11.3%) than local host country women (7.3%); this difference was attributed to factors also noted in WHO South-East Asia Region literature, such as pre-migration well-being and maternal stature, the context of the migration journey, settlement conditions, including pregnancy weight gain, and the social environment post-migration (187,188).

3.4.3 Malnutrition and anaemia

Malnutrition and anaemia in both mothers and children have been observed in most WHO regions, although the settings in which these conditions occur vary widely; for example, some refugee camps provide monthly food assistance, free PHC services, nearby health centres and water collection points, and the free distribution of mosquito nets. However,

compared with refugees and migrants in other settings, camp-based refugees may have limited access to diversified food sources other than the general food ration and few ways of earning money to purchase these (189).

In the WHO Eastern Mediterranean Region, higher rates of anaemia were reported in Syrian refugee mothers compared with Jordanian and Lebanese mothers (178,190,191). In the WHO African Region, a study in Sudan found that being a camp-based refugee is a determinant of anaemia among women of reproductive age (192). The same trend was observed among children, and a study of refugee preschool children in camp settings in Ethiopia reported a link between high levels of anaemia in children and inadequate food rations, insufficient micronutrients, lack of non-food items, such as

blankets and clothes, and the selling or sharing of food rations (193). In the WHO European Region, nutritional anaemia is relatively common among refugee and migrant children (194,195), with one study in particular showing that one out of four children in German refugee centres was anaemic (195).

The impact of acculturation on infant-feeding practices was investigated in a meta-synthesis from Australia; this demonstrated that hospital policies in Western Australia (including not allowing the birthing woman's mother or other family members to be present) are seen as a deterrent to lactation. Unfamiliarity with the health system and societal norms often undermined maternal confidence about infant feeding (196,197). In the WHO South-East Asia Region, a higher prevalence of both moderate-



A family from Honduras, part of a "Migrant Caravan", walks on a road in Guatemala. © UNICEF / Daniele Volpe

acute undernutrition and severe-acute undernutrition in Rohingya refugee children compared with local children in Bangladesh was observed (198–200).

Further studies in the Region showed that religion, birth weight, disease history, stunting, exclusive breastfeeding, time of initiation of breastfeeding and lack of knowledge about anaemia among parents were all associated with the prevalence of anaemia among migrant children (201,202). Overweight/obesity among children is discussed in section 3.5.6. Refugee and migrant children are particularly vulnerable to underweight issues, undernutrition and wasting (203–207). A cross-sectional study in two refugee reception centres in Greece concluded that the prevalence of underweight for refugee children was 7.8%; the proportion of underweight boys in one reception centre and girls in the other was found to be very high, according to WHO trigger levels (208).

Inadequate infant-feeding practices and chronic infant undernutrition were explored in a mixed-methods study along the Thailand–Myanmar border, finding increased odds of underweight among migrants (209). Studies of refugee children from the Democratic People's

Republic of Korea in the Republic of Korea and on children enrolled in UNRWA schools in the occupied Palestinian territory, including east Jerusalem, highlight how children experience the double burden of undernutrition/malnutrition and obesity (210,211).

3.4.4 Other child health issues

Child health (with children defined by UNICEF as any person younger than 18 years) is a broad field, with various issues being of interest in distinct regions (Chapter 4 discusses childhood vaccination rates and uptake).

For example, among Syrian refugees in the WHO Eastern Mediterranean Region, data indicate that mortality rates are higher among children born to Syrian refugee women than in those of the host population (179).

The mortality of children under 5 years of age was explored in a retrospective cross-sectional survey in the Meheba refugee camp in Zambia, which found that malaria and respiratory infections accounted for 81% of child deaths and diarrhoea for 10%; an increased frequency of visits to the health care facility significantly reduced mortality in children (212).

In the WHO European Region, it was reported that the overall health of refugee and migrant children is often contingent on the child's particular experiences in the home country, during travel and after arrival at the destination country, as well as being linked to the health of their mother (213,214). Because of the disruption of health care in the conflict zones from where the children may have come, they may be more vulnerable to vaccine-preventable diseases (VPDs) such as latent TB infection (LTBI) and hepatitis B virus (HBV) infection (215). Also reported within the WHO European Region are nutritional deficiencies, poor oral health, skin conditions, and airway and gastrointestinal infections (216).

Compared with refugees and migrants in other settings, camp-based refugees may have limited access to diversified food sources other than the general food ration and few ways of earning money to purchase these.

Studies conducted across the WHO European and Eastern Mediterranean Region show that oral health is poor among refugee and migrant children, with dental care considered a key problem in populations such as UASC in Spain and Syrian refugees in Jordan (217–220). In Italy, a study among a sample of 553 children found caries prevalence of 77.5% in the migrant group compared with 55.9% in the non-migrant group, with the unmet restorative treatment needs index being higher among migrant children (221). Box 3.3 gives more information on how the migration process affects the health of children.

3.5 Noncommunicable diseases and major risk factors

- NCDs are an increasing health burden among refugee and migrant populations, often linked to longer residence in the host country, particularly high- and middle-income countries.
- Diabetes mellitus and hypertension are left undiagnosed and uncontrolled for some refugees and migrants, who have a higher prevalence than the host population, leading to a higher risk of CVDs.
- Cancer is often diagnosed at later stages among refugees and migrants, who often have lower uptake of or access to preventive measures.
- Evidence suggests that mental health problems, the stress of adapting to a new environment, unemployment and previous experience of war can contribute to an increase in substance use.
- Refugees and migrants may experience issues related to underweight and weight loss, even in their host country, and others may also experience increased risk of high body mass index (BMI) once they reside in host countries.

Across WHO regions, NCDs constitute the major part of the burden of disease for all populations, including refugees and migrants. The increased prevalence is associated with factors such as the social and environmental determinants of health, changing lifestyles and the impact of behavioural determinants such as use of tobacco and alcohol, unhealthy diet and lack of exercise, ageing, social exclusion, low levels of health literacy and limited access to health care.

The most prevalent NCDs are CVDs (particularly coronary artery disease), cancer, respiratory disease and diabetes. In particular, diabetes, cancer and CVDs, and the linked risk factors of obesity, and substance use, have been discussed in regional literature, providing the framework for this report. Obesity is also considered in this section, together (briefly) with undernutrition.

Interestingly, a study among Syrian refugees and host communities found that 50.4% of refugee households and 60.2% of host community households reported that a member of their household had been diagnosed with one of the five NCDs under investigation (i.e. hypertension, CVDs, diabetes, chronic respiratory disease and arthritis). Host community prevalence was higher than that of refugees for all conditions except for chronic respiratory disease. Care-seeking for NCDs was high for all five conditions, with 82.9% of refugees and 97.8% of host respondents having sought care in Lebanon for their condition (232).

A higher risk of type 2 diabetes mellitus, hypertension and CVDs was observed among refugees and migrants in the WHO Western Pacific Region, associated with socioeconomic factors such as perceived ethnic discrimination, and low levels of health literacy with regards to NCD prevention (233,234). As observed for other NCDs, the length of stay and acculturation

Box 3.3.

Children on the move and unaccompanied or separated children

Of the approximately 281 million migrants in 2020, it is estimated that 36 million (close to 13%) were children (222). Close to 14 million live in Asia, 11 million in Europe and North America and 6.2 million in Africa.

Among those forcibly displaced, children are drastically overrepresented.

Worldwide, more than 4 out of 10 forcibly displaced people are younger than 18 years, with 33 million children living in forced displacement – either internally displaced within their country or as refugees or asylum seekers abroad – at the end of 2020 (223).

Characterizing the health status of children on the move is a challenge because of the diverse backgrounds and experiences of refugee, migrant and internally displaced children, as well as the lack of comprehensive, disaggregated and comparable data. However, findings generally show that children on the move tend to have a higher exposure to risk factors than children in host communities because of poor living conditions or limited access to hygiene, and because health care is routinely disrupted or halted when children and families move or are displaced (224). Exposure to risk factors can be even higher when other factors are considered, such as disability status, sex and gender, or being a member of a minority group.

Other social and environmental determinants of health influencing the well-being of children on the move include health literacy, which can be affected by the limited language proficiency of their parents, their level of education and income (i.e. socioeconomic status), migratory status and food insecurity (225).

The journey is often the most dangerous stage for many children, particularly for unaccompanied or separated children (UASC). During the journey, children may be exposed to the risk of injuries, extreme weather conditions or acute infectious disorders. UASC are at particular risk of physical and sexual violence (213). An analysis of the journey of some 11 000 migrant and refugee adolescents (aged 14–17 years) and young people (aged 18–24 years) along the Mediterranean routes found that 8 out of 10 adolescents reported exploitation (159).

Children on the move are also at greater risk of psychosocial and mental health problems (226). They may feel overwhelmed, confused or distressed, frightened and anxious, as well as experience sleep problems, and outbursts of anger and sadness (227). This is particularly the case for forcibly displaced and refugee children, who commonly experience mental health problems, such as post-traumatic stress disorder or depression (228).

Children on the move are faced with legal, procedural, financial, cultural and social barriers that can exclude them from accessing health services, including routine immunization, nutrition and child health services, and mental health services. Common exclusion barriers include discrimination and stigmatization by health care providers and host community members, language barriers, lack of access to information, prohibitive costs, the inaccessibility of health insurance and other social protection schemes, and legal status (229). A lack of firewalls between service providers and immigration authorities may deter undocumented migrants from seeking health services for fear of arrest, detention and deportation (230). Finally, children at the greatest risk of hunger and disease have also seen their already fragile health and food systems buckle under the strain of the COVID-19 pandemic. Around 50% of countries in which UNICEF has active humanitarian operations reported a reduction in access to health care among displaced and refugee populations as a direct consequence of the pandemic (231).

were associated with CVD risk factors, such as diabetes and obesity, with those who migrate at younger ages being more susceptible (235–237).

Other NCDs to note from the literature reviewed include nutrition-related health issues, such as scurvy and anaemia in the WHO African Region (238,239); inflammatory diseases in the WHO Region of the Americas, such as inflammatory bowel disease, Crohn's disease and ulcerative colitis (240–242); and renal diseases in the WHO European Region (243,244).

3.5.1 Cardiovascular diseases

The prevalence of CVDs varies widely across the WHO regions. CVDs are known to affect refugee and migrant populations disproportionately in the WHO European Region, as multiple studies have demonstrated that factors such as the social determinants of health and ethnicity often negatively affect the prevalence and types of disease among these populations (245–247). In Italy, refugees and migrants from sub-Saharan African and south Asian countries were found to have a higher risk of CVDs than native host country populations (248–250).

However, data from the United States show a lower prevalence of cardiovascular events such as heart attack and stroke in individuals born in other countries (e.g. naturalized citizens, refugees and migrants) compared with the host population; in particular, a lower prevalence was observed among those from Mexico as well as Asian, Caribbean and Central American countries (251).

In Goiás State, Brazil, a 2020 report indicated that CVDs were one of the main reasons for migrants to seek medical attention, representing 32.7% of cases of CVD within the State (252). Medical consultations for circulatory system diseases among Venezuelan refugees and migrants in Colombia increased by 93.4% in 2019 from 2018 figures (253).

Studies among Syrian refugees residing in Jordan and Lebanon reported a CVD prevalence of 8.2–20.9% (254,255).

3.5.2 Cancer

Evidence from WHO regions in relation to cancer among refugees and migrants is not uniform and there is no clear pattern. There is little consistency within and between WHO regions regarding factors linked to cancer among refugees and migrants and limited information regarding cancer among refugee and migrant children. For these reasons it is difficult to draw conclusions at national, regional and global levels.

In Canada, migrants diagnosed with cancer were found to have a mortality advantage over non-migrant populations, and studies from Chile and the United States pointed to the country of origin as a potential protective factor (256–258). This aligns with global analyses showing a mortality advantage for refugees and migrants across most categories in the International Statistical Classification of Diseases and Related Health Problems, tenth revision, compared with the general population (259).

Similar results were observed in the WHO Western Pacific Region, with the literature suggesting that foreign country of origin was associated with lower cancer morbidity and mortality (260,261). In contrast, in the WHO European Region, studies in Norway and Italy suggested that cancer among refugee and migrant populations tends to be diagnosed at an advanced stage, leading to poorer health outcomes compared with the host population (262,263).

In Lebanon and Jordan, there is a need for increased funding and use of standard operating procedures across the countries and for humanitarian responses to ensure that patients with cancer have equitable access

to care; for example, data from the UNHCR on Syrian and Iraqi refugees seeking cancer treatment or investigation during 2016–2017 showed that one third were for breast cancer, followed by leukaemia or other blood cancers (12%) and then colorectal cancer (11%), among others (264,265).

In the WHO African Region, several studies on refugee and migrant women in Ethiopia, South Africa and Uganda demonstrated a lack of knowledge and awareness with regards to cervical cancer, emphasizing the need for interventions that prioritize prevention, risk reduction and early detection and treatment (266–268). This was also emphasized by results from the WHO European Region: a study in Italy demonstrated that migrant women have a 40% lower uptake of cervical smear tests than Italians and a 55% lower uptake of mammography (269). Similar findings elsewhere confirmed this trend, with migrant women reporting lower utilization of mammography and cervical cancer screening compared with non-migrant women, as observed in many studies across several countries in the WHO European Region (270,271) and among Syrian refugee women in Türkiye (272).

Various studies found that levels of knowledge and awareness about HPV and HPV vaccination as a protective measure against cervical cancer were low among refugee and migrant women, with many not having heard of HPV, unaware it could lead to cervical cancer, incorrectly believing the vaccine was a cure and perceiving that their risk of HPV infection was low (133,273–278). Many expressed a willingness to accept the HPV vaccine if a physician recommended it and could provide more information about cervical cancer.

Among Syrian refugee women in Greece, a study found that only 27.3% were aware of the HPV vaccine; of those who were aware of the

vaccine, several did not know the optimal age of vaccination (279). Evidence from Australia highlighted how parents of adolescents from Arabic-speaking countries play a significant role in shaping attitudes towards HPV vaccination and its acceptability (280).

Studies from the United States highlighted the various barriers faced by refugee and migrant women with regards to accessing the vaccine, including long clinic waiting times, employment inflexibility, lack of vaccine coverage for non-citizens and a lack of school entry policies; however, facilitators of vaccination included transportation services, late clinic opening hours, familial support and a doctor's recommendation (281–283). With regards to vaccine uptake, a study concluded that only 30.8% of refugee girls and women (aged 11–26 years) of Myanmar in the United States completed the course of HPV vaccines (284). In Denmark, refugee girls displayed significantly lower HPV vaccine uptake than their Danish counterparts, with region of origin, duration of residence and income all being associated with uptake (285).

The prevalence of digestive cancers among migrants has also been studied in certain regions. In the WHO Region of the Americas, gastric cancer diagnosed at a late stage was recorded among migrants from Mexico as well as from African, Caribbean and Central American countries (286). Lower rates of decline (among men aged ≥ 50 years) and higher rates of increase of colorectal cancer in Hispanic migrants compared with non-Hispanic whites were reported in the United States (287). Finally, hepatocellular carcinoma caused by HBV has been detected mostly among male migrants in the United States from China, the Lao People's Democratic Republic, Mexico, the Republic of Korea, Thailand and Viet Nam, as well as from countries in eastern Africa (288).

3.5.3 Hypertension

The prevalence of hypertension, an important risk factor for CVDs and a major cause of premature death worldwide, varies across regions and country income groups. The WHO African Region demonstrated the highest prevalence of hypertension (27%), mainly because of a rise in risk factors for hypertension (e.g. excessive salt consumption and being overweight) (289). Hypertension represents a burden of disease also among migrants from the African Region, as documented in the WHO European Region, where hypertension has been reported to be related to ethnicity overall (246).

Migrants often experience obstacles in accessing medical care, which can result in poor hypertension management. For example, in the Netherlands migrants from Ghana have a higher prevalence of hypertension and lower levels of awareness and control of hypertension than the local population (290). In the WHO Eastern Mediterranean Region, the prevalence of hypertension among refugees and migrants varied by ethnic group, and host country; studies have reported a prevalence in Qatar ranging from < 30% (272,291–293) to 65% for south-east Asians (including people from Bangladesh, India, Myanmar, Nepal, Pakistan and Sri Lanka) (294) and even 72% among a sample of Syrian refugees in Lebanon (295).

A study in the United Arab Emirates found that the prevalence of hypertension among migrant workers from Bangladesh, India and Pakistan (30.5%) was much higher than that for the local population (14.0%); further, 76% of migrants classified as hypertensive were not aware of their condition (296). In the WHO Western Pacific Region, a higher risk of hypertension was reported among refugees and migrants because of factors such as poverty and a lack of knowledge about preventing or managing NCDs (280,297,298).

NCDs constitute the major part of the burden of disease for all populations, including refugees and migrants. The increased prevalence is associated with factors such as the social and environmental determinants of health, changing lifestyles and the impact of behavioural determinants such as use of tobacco and alcohol, unhealthy diet and lack of exercise, ageing, social exclusion, low levels of health literacy and limited access to health care.

In the WHO Region of the Americas, a study in the United States found that being born elsewhere and having been resident for only a short period in the host country was associated with better cardiovascular health and a lower incidence of CVD compared with those born in the United States. However, cardiovascular health among recently arrived migrants declined as their duration of stay increased (237,299).

Another study conducted in the United States among a diverse sample of migrants found that those from south-east Asia and the Russian Federation had the highest prevalence of hypertension; migrants from India and from Caribbean and Central American countries had the highest prevalence of overweight/obesity; migrants from Africa and the

Middle East had the highest prevalence of diabetes; and migrants from Europe had the lowest prevalence of all three conditions, demonstrating the importance of tailoring interventions for migrants with different countries of origin and ethnic diversities (299).

3.5.4 Diabetes mellitus

The literature on diabetes presents a complex picture across the WHO regions. In a study of the prevalence of type 2 diabetes in the WHO Eastern Mediterranean Region, prevalence estimates varied between 9.2% and 19.3% among Syrian refugees in Jordan (291,300) and between 8.3% and 15.8% among labour migrants in the United Arab Emirates (301,302), suggesting perhaps potentially comparable levels of prevalence between refugees and migrants in the region.

Conversely, however, a quality-of-life survey conducted in the Gauteng province of South Africa demonstrated that migratory status is associated with a lower prevalence of type 2 diabetes and hypertension compared with non-migrant populations (303).

A number of studies have compared diabetes prevalence among refugee and migrant populations with that of their host populations. However, migration may be only one of the many relevant determinant factors, making such comparisons difficult.

In the WHO European Region, all migrant groups were found to have a higher prevalence and likelihood of diabetes compared with their host populations. Among all migrant groups within the Region, those from the WHO South-East Asian Region were reported to present the highest risk (304). This trend in migrant populations demonstrating a disproportionate burden of disease, particularly diabetes, compared with host country populations is also evident in the WHO Western Pacific Region.

Diabetes prevalence, especially with regards to gestational diabetes, was noted to be higher among Asian migrant women in Australia compared with both the host population and the population in the country of origin (305). This indicates a need for more awareness of gestational diabetes in these migrant women during ANC (306,307).

The influence of negative acculturation, related to the adoption of negative health behaviour that could impact the prevalence of diabetes, was examined in the WHO Region of the Americas and the WHO Western Pacific Region (233,235,308,309). Sociocultural factors, such as cultural beliefs and traditions, affect the self-management of diabetes, particularly dietary habits and medication adherence. In particular, scepticism about the benefits of medication for diabetes has been observed among migrants in both the WHO Region of the Americas and the WHO Western Pacific Region (310–313).

The prevalence of diabetes among adult Syrian refugees in Jordan, an urban middle-income host setting, was estimated at 6.1%; inadequate treatment was reported to lead to other health complications (314). Similarly, Syrian refugees in Türkiye faced challenges in identifying and controlling diabetes, with only 72% of those diagnosed with diabetes taking medication (272). A group of Syrian refugees in Lebanon scored 6 out of 10 on an assessment scale for diabetes core knowledge (self-management) with higher scores linked to education level and previous diabetes education and support (315).

3.5.5 Substance use

Substance use among refugees and migrants has been studied across several WHO regions and includes the use of alcohol, tobacco, sedatives, cannabis, opioids, inhalants, stimulants and hallucinogens. Many of these substances are commercially marketed and,

therefore, are associated with the commercial determinants of health, that is, the private sector activities that affect people's health positively or negatively, including "production, price-setting and aggressive marketing of products such as ultra-processed foods, tobacco, sugar-sweetened beverages and alcohol" (316).

In Sweden, refugees and migrants have significantly lower levels of all substance use disorders compared with the Swedish-born population overall, although the longitudinal data show that these levels converge with those of the Swedish-born population over time (317).

In the WHO Eastern Mediterranean Region, a study among refugee school students residing in the occupied Palestinian territory, including east Jerusalem, found that these students were more likely than native-born students to use psychoactive substances such as energy drinks (318). In the United Arab Emirates, current levels of smoking (28%) and using smokeless tobacco (11%) represent a significant public health burden among migrant workers (319).

Among some refugee groups in the WHO African Region, alcohol and substance use were linked to a higher prevalence of mental health conditions, including psychopathologies (320–322), as well as to the occurrence of SGBV or IPV (321,323). Evidence suggests that factors such as mental health problems, the stress of adapting to a new environment, unemployment and previous experience of war can contribute to an increase in substance use (323).

3.5.6 Obesity

Studies across regions demonstrate an increased risk of high BMI among refugee and migrant populations once they reside in host countries, which also increases their risk for NCDs (245,324–329). The literature presents a nuanced picture, highlighting regional

variations that may be explained by contextual factors, including acculturation. In many high-income countries across the WHO Region of the Americas, the WHO European Region and the WHO Western Pacific Region, dietary acculturation, duration of stay and changes in lifestyle as migrants integrate within host communities may contribute to an increased risk of poorer nutritional status and higher levels of obesity (324,330–332).

A study of migrant workers in Thailand found that obesity is often associated with factors such as being older than 40 years, being female, having engaged in assimilation strategies to become more adapted to the host society and having a lower level of education (328). The study also highlighted the need for comprehensive preventive health interventions targeting the health literacy of these groups. In Australia, evidence from Arabic-speaking refugee and migrant populations indicated that they engaged in lower levels of physical activity compared with host populations, with barriers to participation including factors such as mainstream language illiteracy, limited exercise skills and a lack of female- or male-only settings for physical activities (310).

Studies from the WHO African Region have documented dietary and lifestyle changes related to displacement, which can often be associated with lower SES and loss of assets (327,333). One such study reported that 5% of male and 32% of female Saharawi refugees living in the Western Sahara of Algeria faced obesity, and only 10% of households cultivated vegetables, instead relying on starchy staple foods (334). Differences between the sexes for this health issue and others were also discussed in Chapter 2.

In the United States, it was observed that length of stay in the destination country has an impact on the prevalence of obesity.

The prevalence of obesity in Hispanic migrants who had been there for 15 years reached 24.2%, while those who had been there for 5 years had a lower prevalence of 14.5% (324). Similar observations have been made in the WHO European Region, with the duration of stay associated with the development of overweight/obesity (335–337), even when adjusted for age; this association is stronger for women and African migrants (325). Several studies in the WHO European Region also noted the importance of using the central or abdominal obesity indicator, in addition to general obesity, for refugee and migrant groups, as it is a well-established indicator for CVD risk (338,339).

Differences may exist between ethnic refugee and migrant groups, with a study showing a higher abdominal obesity risk compared with the general population for Bangladeshi women, Pakistani men and women, Black African women and Black Caribbean women (340). Therefore, WHO recommends that measures of abdominal obesity through waist circumference are particularly important for members of specific ethnic groups, including those of a south Asian origin (341).

Although undernutrition has not been directly linked with NCDs, protein-caloric deficiencies and/or micronutrient depletion can have multiple ill effects. Adult refugees and migrants may arrive in the host country underweight and with protein-caloric deficiencies and/or micronutrient depletion but find it hard to establish a healthy diet even after arrival. Evidence from Switzerland found that the prevalence of underweight among adult refugees (5.7%) was higher than that in Swiss adults (4.7%), with the study citing financial hardship, language barriers and lack of cooking skills, as obstacles to maintaining a healthy diet (342). A study on changes in body weight among refugees from the Democratic People's Republic

of Korea in the Republic of Korea found that refugees who lost weight between two separate examinations were more likely to exhibit irregular meal consumption patterns and consume insufficient levels of vitamin B2 and calcium (343).

Overweight among children. Overweight/obesity among children is a growing global concern. It is, however, difficult to generalize about the prevalence of overweight/obesity in refugee and migrant children and adolescents because of the characteristic differences in populations and destination countries. Economic, social and other factors give rise to the differentials found between refugee/migrant children and those from the host populations, as found in various studies mentioned below.

In the WHO European Region, data indicate that one in three children is overweight or obese, and that children and adolescents (aged 5–19 years) show rising obesity rates in most European countries (344). It is also observed that, overall, non-European refugee and migrant children are at a higher risk for overweight/obesity than their host country counterparts (205) and have a higher consumption of low-priced, high-sugar and high-fat foods, and poorer adherence to national dietary recommendations (345,346). Overweight and obese refugee and migrant children and adolescents are also of concern in other high-income settings.

Studies from Canada, Germany and the United States have indicated that children with a migrant background are at a higher risk for overweight/obesity than their host country counterparts. Studies in the United States found that the prevalence of obesity levelled off for children from the host population but continued to increase for migrant children and adolescents (347–349). A study in Australia found that migrant children from low- and

middle-income countries had higher rates of overweight/obesity compared with migrant children from high-income countries or Australian children (350). Similarly, a mixed-methods cross-sectional study in Canada found that older refugee children from privileged backgrounds in low-income countries were at a higher risk of overweight/obesity (351).

Data from five countries in the Programme for International Student Assessment (PISA) survey (352) on BMI showed that students who are children of migrants (often referred to as second-generation migrants) had lower levels of obesity compared with their host country counterparts, with migrants in China, Hong Kong Special Administrative Region, and Spain having only marginally greater levels of obesity (Table 3.1). Spain was also the only country to report a higher prevalence of overweight among children of migrants (11.9%) compared with host country children (7.6%). Further, children of migrants in three countries (Ireland, Panama and the United Arab Emirates) were more likely to have BMI levels considered healthier than host country students (352). In Australia, Chinese migrants who arrived as children or adolescents were more likely

to report CVD risk factors, such as obesity and diabetes, than migrants who arrived during adulthood, as younger migrants may be quicker to adopt the unhealthy diets and lifestyles associated with their host countries (235). Evidence from Canada and the United States has indicated that older refugee and migrant children are particularly at risk for overweight/obesity, with significant variation across children from different countries of origin and of different SES (353,354).

These results are in contrast to those found for child and adolescent migrants in the WHO Eastern Mediterranean Region, who displayed lower levels of overweight/obesity than host country populations. Lower obesity levels were reported for migrant students in the United Arab Emirates (5.7%) than for host country students (11%). In Qatar, Qatari students had a higher likelihood of obesity than non-Qatari students (355). Even among young preschool children in the United Arab Emirates, host country children exhibited a higher prevalence of overweight and consumed discretionary calorie-high foods more frequently than migrant children (356).

Table 3.1. Students with different nutritional status in selected countries, by BMI and migratory status in the PISA survey, 2018

Country	Nutritional status (no. (%))					
	Children from host population			Children of migrants		
	Obese ^a	Overweight ^a	Healthy ^a	Obese ^a	Overweight ^a	Healthy ^a
China, Hong Kong Special Administrative Region	38 (1.5)	185 (7.2)	2350 (91.3)	11 (2.5)	31 (7.2)	391 (90.3)
Ireland	279 (13.0)	270 (12.6)	1597 (74.4)	26 (7.0)	44 (11.8)	302 (81.2)
Panama	248 (8.7)	337 (11.8)	2271 (79.5)	4 (3.6)	8 (7.2)	99 (89.2)
Spain	378 (1.7)	1740 (7.6)	20 660 (90.7)	39 (2.4)	190 (11.9)	1363 (85.6)
United Arab Emirates	801 (11.0)	1146 (15.8)	5323 (73.2)	290 (5.7)	641 (12.6)	4138 (81.6)

^aObese, overweight and healthy are defined as having a BMI of > 30.0, > 25.0, or 18.5–24.9, respectively (353).
Source: Organisation for Economic Co-operation and Development (352).

3.6 Mental health

- The prevalence of depression and anxiety can be higher among refugees and migrants at different stages of the displacement and migration experience, based on various individual, social and environmental factors.
- Conflict- and war-affected refugees and migrants display higher levels of PTSD and other mental health issues, particularly younger migrants and adolescents.
- There is limited evidence and a great need for research on how psychotic disorders and schizophrenia affect refugees and migrants.
- Evidence shows that the incidence of psychoses is higher among migrant populations in a number of countries, linked to the cumulative effect of social disadvantages before, during and after migration.
- Refugee, asylum seeker and irregular migrant children, in particular, display a higher prevalence of mental health issues compared with host populations.

Migrants and refugees can be exposed to various stress factors that affect their mental health and psychosocial well-being before and during their migration journey and during their settlement and integration. A wide range of mental health conditions may present, including depression, anxiety, PTSD, suicide, self-harm and psychotic disorders. The prevalence of these conditions is highly variable as it depends on social and environmental factors, in addition to access to mental health services and diagnosis. The following results indicate, however, that the prevalence of mental health problems may be high.

Many migrants and refugees lack access to mental health services or experience barriers in accessing these. They also face disruptions in continuity of care. The mental health needs of migrants and refugees should be addressed by organizing inclusive and accessible promotion and prevention programmes; strengthening mental health as part of general health services; and ensuring timely diagnosis, treatment and rehabilitation.

A recent WHO estimate of prevalence found that the burden of mental disorders is high in conflict-affected populations, including refugees, in whom the prevalence of many of the major mental disorders is as high as 22.1% at any given time (357). Some studies conducted in refugee populations resettled in high-income countries have shown an increased risk of suicidal behaviour, likely the result of the combination of socioeconomic disadvantage, exposure to potentially traumatic events, burden of mental disorders and lack of appropriate and accessible care (358,359).

3.6.1 Depression and anxiety

A high prevalence of depression among refugees and migrants across the WHO regions is widely documented and can develop at various points along the displacement and migration pathways. For example, depression can begin in home countries as a result of exposure to traumatic events, after experiencing violence along the displacement and migration journey, or when living in host countries as a result of discrimination, marginalization and a loss of resources (360–373).

A global meta-analysis found that refugees and asylum seekers had high and persistent levels of PTSD and depression (374). However, the prevalence of depression and anxiety in refugees and migrants varies widely across the WHO regions, driven by a number of regional and contextual factors. In the WHO European

Region, refugees have a somewhat similar prevalence of anxiety (13%) as the general population (9%), but a markedly higher prevalence of depressive disorders (32% versus 4%) (375).

In the WHO Eastern Mediterranean Region, Syrian female refugees present higher scores of maternal depression than low-income Lebanese mothers (370). Notably, data vary on the impact of duration in the host country on the prevalence of depression and anxiety. Among Syrian workers in Egypt, an increased duration of living in the host country is a significant risk factor for depression (373).

A longitudinal study among young refugees (aged 19–25 years) in Sweden concluded that the prevalence of common mental disorders decreased with increased education and that a decreasing prevalence of PTSD was associated with a longer duration of stay in Sweden. Being a UASC was associated with a significantly higher risk of PTSD compared with the young Swedish population or with accompanied young migrants in Sweden (376).

The literature indicates that mental health issues among refugees and migrants in the WHO Region of the Americas have increased in recent years. For example, a study conducted between 2018 and 2019 in Colombia shows that the number of Venezuelans in Colombia treated for depression increased by 108.3% and the number treated for anxiety increased by 224.6% (253). In the United States, Brazilian women have reported increased levels of depression and anxiety as a result of separation from their families and social isolation (377).

Among refugees in the WHO African Region, the prevalence of symptoms of common mental health conditions is high (378–380). A study among refugees in South Africa revealed a prevalence of 49.4% for anxiety, 54.6%

for depression and 24.9% for PTSD. Several factors increased the risk of these mental health challenges, including a history of family separation, discriminatory experiences, sexual violence and abuse, recent arrival in the country, and being divorced or widowed (381,382).

Mental health outcomes have been studied among different refugee and migrant populations in the WHO South-East Asia Region, notably Rohingya refugees in Bangladesh. Studies among Rohingya refugees found high levels of PTSD, depression, sleep disorders and functional impairment (disability), along with very high levels of daily stressors associated with camp life, such as food insecurity, lack of freedom of movement and concerns about personal safety (383–385).

The prevalence of mental health issues varies among migrant workers. In Thailand, migrant workers from Myanmar exhibited a prevalence of 11.9% for symptoms of depression or anxiety; this reduction in prevalence compared with previous studies was possibly indicative of a supportive community and workplace environment, as well as effective delivery of

The prevalence of mental health conditions among refugees and migrants is highly variable as it depends on social and environmental factors, in addition to access to mental health services and diagnosis. However, results indicate that the prevalence of mental health problems may be high.

health promotion strategies that include mental health (386,387). Nepalese migrant workers exhibit a prevalence of 28.2% for psychological distress, 35.9% for depression and 41% for anxiety (388). Factors that migrants from Nepal attributed to poor mental health included the high expectations of families in their home countries, unfair treatment at work, poor-quality accommodation and a poor social life, in addition to limited access to mental health services (389).

Isolation and discrimination are significantly associated with depression and anxiety among migrants in the WHO Western Pacific Region. However, the formation of deep social connections with the host community as well as the provision of social integration services are reported to be valuable in promoting migrant mental well-being (64,390–392).

3.6.2 Post-traumatic stress disorder

Exposure to traumatic events occurs throughout the world. However, exposure is unequally distributed within the global population, and the risk of PTSD varies substantially with the type of traumatic event. Events involving interpersonal violence (especially IPV) are associated with the highest risk of PTSD (393). The long-term effects of abuse or other traumatic events can include severe anxiety, stress or fear; the use of alcohol or drugs; depression; eating disorders; and self-injury or suicide (394).

Syrian refugees within the WHO Eastern Mediterranean Region present numerous mental health complications, which have been further exacerbated by the COVID-19 pandemic. For example, a study of mental health among Syrian refugees suggested that they had a higher prevalence of PTSD resulting from quarantine (82.5%) compared with the host population (66.5%) (395). Studies have indicated relatively high levels of PTSD among refugees

and migrants: a prevalence of 24.3% was found among refugees in Berlin (396) and of 35.7% among Arabic-speaking asylum seekers living in three collective accommodation centres in Erlangen, Germany (397). In Sweden, a survey of 455 asylum seekers from Afghanistan, Eritrea, Iraq, Somalia and the Syrian Arab Republic living in three large housing facilities found a prevalence of 67.9% for depression, 60.7% for PTSD and 59.3% for anxiety (398). These levels are considerably higher than those of other groups, including refugees in the United States from countries where traumatic stress was endemic (399).

Similarly, exposure to war and violence within families and communities was identified as a risk factor for PTSD and internalizing mental health issues in the WHO African Region and WHO Region of the Americas (400–404). Family accumulation of PTSD symptoms was identified in Burundian refugee families in Tanzanian camps, where PTSD prevalence in mothers was 33% and 29% in fathers. The same study found that children living with two parents who had experienced traumatic events were also more likely to present high levels of PTSD symptoms and impairment (see also section 3.6.5 on child mental health) (405). In a study among asylum seekers from El Salvador, Guatemala and Honduras in the United States, almost one third met the diagnostic criteria for PTSD and about 17% did so for both PTSD and depression (406).

However, it should be noted that signs of normal distress and mental disorder are often not easily distinguished in studies conducted in humanitarian settings, including in refugee settings, leading to inflated estimates of mental health conditions such as PTSD (407).

3.6.3 Suicide and self-harm

The evidence identified in regional research on suicide and self-harm is limited, making it difficult to draw conclusions in this report on

their prevalence and the factors influencing them. However, a few studies described in this section have examined suicide attempts and ideation in refugee settings, especially among adolescents. Some of the studies that focused on refugee populations resettled in high-income countries have shown increased risk of suicidal behaviours, likely the result of a combination of socioeconomic disadvantage, exposure to potentially traumatic events, the burden of mental disorders and a lack of appropriate and accessible care.

A study examining the psychosocial and clinical profiles of people visiting the emergency department in Qatar as a result of accidental self-harm and suicide attempts found higher suicidal mortality among expatriates (35.5%) than among Qataris (21.4%) (408). Adolescents (the majority aged 13–15 years) living in the occupied Palestinian territory, including east Jerusalem, and in five UNRWA camps in the occupied Palestinian territory, including east Jerusalem, Jordan, Lebanon and the Syrian Arab Republic expressed high rates of suicidal ideation (25.6%). Factors associated with suicidal thinking included using cannabis and tobacco, having no close friends, experiencing food insecurity, having worry-induced insomnia and perceptions of limited parental support, among others (409).

A study among adolescent refugees in Uganda concluded that female adolescents had a higher prevalence of suicidal ideation and psychological distress than their male counterparts, with major risk factors including loneliness, isolation and having no hope for the future (410).

Rohingya refugee women face numerous challenges that increase their vulnerability to suicidal ideation and other mental health problems within the emergency operations in Bangladesh. These factors include prolonged

exposure to conflict and persecution, lack of privacy and safe spaces, high levels of SGBV, and limited access to integrated mental health and psychosocial support (411,412). A further problem in the camps was a scarcity of humanitarian staff with the capacity to deal with suicide risk among refugees. In a study conducted among humanitarian staff working in Cox's Bazar in Bangladesh, 26% reported having worked with a person at risk of suicide and a similar proportion disagreed with the statement that suicide was a problem in the community. Only 63% of those surveyed said they felt confident in carrying out a suicide risk assessment (413).

Although refugee and migrant populations face unique challenges that may increase their vulnerability to suicide and self-harm, the evidence varies when comparing these populations with those of their host countries. Among people with a mental disorder in Sweden, the rates of suicide attempts are lower in refugees compared with Swedish-born individuals (414). A study assessing data from a psychiatric hospital in Qatar found no difference in the levels of near-fatal deliberate self-harm between Qatari and non-Qatari patients, possibly because of the small sample sizes (415). The prevalence of suicide attempts among adolescent migrants in various European countries has been reported to be higher than that for host populations (416).

3.6.4 Schizophrenia and other psychotic disorders

There is good evidence that the prevalence of psychosis is higher in many migrant populations than in host country populations in a number of countries (417). Prevalence varies with region of origin, region of destination and their combination, which suggests that prevalence is strongly influenced by the social context. Research has identified a diverse range of social factors – including childhood separation from

parents, discrimination and, at an area level, ethnic density – as being of potential importance (418). Studies also suggest that the cumulative effect of social disadvantages (e.g. lower SES, experiences of social disempowerment) before, during and after migration is associated with the increased risk of psychosis in migrants, independently of ethnicity or length of stay in the country of arrival (417).

Refugees and migrants in Sweden have been identified as having an above-average risk of these conditions compared with host populations (419). In a large, prospective cohort study in Sweden, the prevalence of schizophrenia was elevated among migrants (adjusted hazard ratio, 2.20) and their children (adjusted hazard ratio, 2.00) compared with Swedish-born individuals. This is similar for compulsory hospitalization, for which the risk is highest for individuals from sub-Saharan African, Middle Eastern and north African countries compared with Swedish-born individuals (420).

However, a meta-analysis comparing refugees with non-refugee migrants in Canada found no association between the type of migration and risk of non-affective psychosis among refugees (421). Similarly, a study in Australia found no difference in overall rates of hospital admission after presentation of a first episode of psychosis among migrants compared with host populations; however, there was a higher rate of involuntary admission for migrants, especially those from Africa (422). Further research is needed to better understand the link between migration and the prevalence of psychotic disorders.

3.6.5 Child mental health

In the WHO Eastern Mediterranean Region, a study found the prevalence of moderate-to-severe PTSD among refugee Syrian schoolchildren in Jordan to be 31%; it was

statistically significantly higher both in female adolescents compared with adolescent males and in children who had experienced the death of one or both parents compared with those whose parents were living (423). In Lebanon, Syrian refugee children commonly reported flashbacks (30%) and nightmares (22%) (424). In the United Arab Emirates, adolescents (aged 12–18 years) from southern Asian countries reported the highest prevalence of symptoms of depression (33.3%) compared with their counterparts from Australia, Canada and the United States (12.8%), Arabic-speaking countries (10.5%) and the United Arab Emirates (22.0%) (425).

In the United States, children of irregular migrants (aged 4–8 years) experienced greater behavioural conduct problems and hyperactivity than did older children (426). Children who had experienced family separation presented significantly more emotional problems than children who had not been separated (426). A meta-analysis of eight studies of child and adolescent refugees and asylum seekers revealed that 22.7% were diagnosed with PTSD (35% for those displaced for over 2 years), 13.8% were diagnosed with depression and 15.8% with an anxiety disorder (427). In contrast, in general populations of children and adolescents globally, there is a prevalence of 2.6% for any depressive disorder and 6.5% for any anxiety disorder (428).

Evidence from countries in the WHO African Region, the WHO European Region and the WHO Western Pacific Region further suggests that UASC and unaccompanied adolescents are at risk of developing mental health problems, such as traumatic acute stress or anxiety, and a range of behavioural and emotional problems resulting from higher levels of exposure to violence, family separation, deceased or missing family members and living in closed detention (429–436). UASC are particularly vulnerable

because they may face not only exposure to multiple traumatic events, such as armed conflict, loss of close relationships and personal violence, but are also without the protective buffer of primary caregivers, as reported in research from the WHO European Region (437,438).

3.7 Communicable diseases

- Evidence shows that refugees and migrants do not spread diseases in host countries; their susceptibility to infection is increased by the environmental risk factors related to their living and working conditions.
- Delayed HIV testing and diagnosis are major challenges for refugee and migrant populations due to barriers such as limited access to health care, social stigma and discrimination, among others. Evidence indicates that post-migration acquisition of HIV/AIDS plays a key role.
- Data on prevalence of TB show a recent increase among refugee and migrant populations in countries hosting the largest numbers. However, overall prevalence in many host countries remains low. Multidrug-resistant TB and LTBI affect refugees and migrants at higher levels than host populations; evidence varies regarding the prevalence of extrapulmonary TB.
- Tropical and parasitic diseases risk spreading to non-endemic regions if timely diagnosis and treatment are not provided to mobile populations, particularly in destination countries.

The control of communicable disease is a global priority, highlighted by the experience of the recent COVID-19 pandemic. New emerging and

Refugee and migrant workers have limited access to health care facilities and usually receive late and/or substandard treatment for malaria. Government policies may not always include malaria as an occupational health concern, meaning that migrant workers can be excluded from malaria prevention and treatment services available under the labour laws of a host country.

re-emerging forms of infection will continue to occur. These diseases disproportionately impact resource-constrained communities and are linked to a complex range of overlapping determinants of health, including the availability of safe drinking-water and basic sanitation (WASH), housing conditions, climate change risks, gender inequity, sociocultural factors and poverty, among others.

It is clear that displacement and migration pathways may expose refugee and migrant populations to communicable diseases during their journey to destination countries (439,440). Which specific diseases will vary immensely by region because of endemicity and local epidemiology. However, the highly prevalent infectious diseases affecting refugees and migrants globally, identified in the literature and discussed in this section, include HIV, TB and malaria. (SARS-CoV-2 is discussed separately in section 3.8.)

The risk of transmission between and within regions is increased by a lack of preventive and curative services that are mobility aware and by barriers to health care services (Chapter 4) preventing refugees and migrants from receiving timely diagnosis, treatment and care for communicable diseases.

3.7.1 HIV/AIDS

Refugee and migrant populations face numerous social, economic, political and legal barriers that have resulted in delayed testing and higher risk for HIV transmission. Refugees and migrants living with HIV report stigma and discrimination from health care workers, host societies and their own families and communities, with many choosing not to openly disclose their status because of fears of isolation and

marginalization (441–450). Discrimination, among other barriers to accessing health services, is discussed further in Chapter 4.

Research across the regions documents numerous additional challenges for these populations, including language barriers, low SES, lack of knowledge and low levels of health literacy, all of which affect vulnerability to HIV transmission (72,451–455). Such challenges also threaten the success of antiretroviral therapy (ART), which is critical to maintaining viral suppression both in terms of the person's own health and in reducing the possibility of transmission (456).

Increased rates of HIV transmission in refugee and migrant populations have been observed, particularly along border areas



Girls from the Baqa'a Palestinian refugee camp in Jordan visit the National Centre for Diabetes, Endocrinology & Genetics in Amman. Such visits have become routine among school students and typically involve a general health check-up, weight measurement, and health education. © WHO / Tania Habjouqa

and transportation routes around the world. Several WHO regions have also identified a geographical link between HIV serostatus and movement across international borders. One study from the WHO African Region found that high levels of HIV prevalence were significantly linked to high mobility at the national borders of Zimbabwe and discussed the potential for conditions related to mobility leading to risky behaviours, increasing vulnerability to HIV (454).

In the WHO Western Pacific Region, the border between China and Viet Nam is a high-risk area for HIV transmission, particularly for migrant sex workers seeking short-term work, because of inconsistent condom use (457). Moreover, the Thailand–Myanmar border area, where TB–HIV coinfection is prevalent among refugees and migrants, is a difficult environment for detection and treatment because many migrants are highly mobile and difficult to reach for follow-up (458). This example also raises the importance of cross-border continuity of care.

Refugees and migrants may often face discrimination from their home communities and host society (459). For example, African-born women living in the United States report pre- and post-migration HIV-related stigma, including within their families and with intimate partners, African migrant communities and the host population (447). At the border between Mexico and Guatemala, research suggests that sex and gender, social class and race/ethnicity are key determinants of HIV/AIDS-related stigma, and also provide a foundation on which migration-related stigma can be constructed (459). SGBV increases the risk of HIV infection (154).

Late-stage diagnosis of HIV/AIDS is a substantial health concern among refugee and migrant populations. In Europe, 56% of

migrants from sub-Saharan African countries and 54% of migrants from south-east Asian countries present at a late stage of HIV infection (460). Research indicates that almost 30% of HIV-positive migrants in the United States were diagnosed at a late stage, a proportion higher than that of the equivalent United States population; this is a common issue among Caribbean, particularly male, migrants (461–463).

However, there is increasing evidence of post-migration acquisition of HIV, particularly in Europe (464,465): research has suggested that 63% of HIV-positive migrants in nine European countries acquired HIV after migration (466). In France, HIV acquisition after settlement was found to be linked to short or transactional partnerships, unstable housing and lack of a resident permit (449).

Mobile migrant populations – such as Shan migrant workers in Thailand and circular migrant female workers (i.e. those moving repeatedly between host and home communities) across Lake Victoria (from Kenya, Uganda and the United Republic of Tanzania) – cite high mobility as a barrier to accessing HIV treatment once diagnosed, in addition to stigmatization, discrimination and a perception of being at low risk (467,468).

Other groups at higher risk of infection discussed in the literature are refugee and migrant MSM and male migrant sex workers. In Lebanon, refugee MSM are more likely to engage in unprotected sex with high-risk partners compared with Lebanese MSM; however, the refugees are significantly less likely to have ever been tested for HIV (46%) compared with Lebanese MSM (62%) (448). In another study in Lebanon, refugee MSM reported feeling uncomfortable with doctors, lacking information about where to obtain free HIV testing and having experienced

discrimination from health care providers based on their refugee status (455).

Male migrant sex workers in Europe have a disproportionately high burden of STIs and HIV infection, along with heightened exposure to discrimination and social exclusion, as well as limited access to health services (76,469). In the WHO Western Pacific Region, migrant MSM display a higher prevalence of HIV and STIs compared with resident MSM, with evidence suggesting that newly arrived Asian-born MSM are diagnosed at a more advanced stage of HIV infection than non-migrant MSM (470–472). Similarly, a study conducted on male migrants from African and Caribbean countries and on male Black migrants, including MSM, found that there was an association between HIV infection and STIs, including an increased risk of HPV infection and syphilis (473).

Access to treatment can be limited for refugees and migrants living with HIV, with many relying on various sources for support and services (474). Among migrant MSM with HIV in Australia, high costs led migrants to acquire ART through compassionate access schemes (471).

Malawian migrants in South Africa expressed appreciation for health care workers who dispensed a six-month supply of ART refills on their behalf to friends and family members, who then organized delivery via bus and truck drivers (475). A cross-sectional survey found that migrants from Lesotho in South Africa experienced barriers to accessing ART, including transport costs, a lack of knowledge about where to obtain ART and fears over their legal status (476). Service providers also identified a lack of transfer letters (i.e. form referrals from another clinic or other health institution) as a primary challenge in facilitating care and treatment for migrants. Among migrants with HIV in the Netherlands,

risk factors for non-adherence to combination ART included low levels of social support and education (477).

Of concern are the poor health outcomes of migrants living with HIV across various contexts. In Botswana, a retrospective cohort study indicated that migrants initiated ART more rapidly than the host population; however, analysis of 5-year survival rates indicated that migrants had a higher mortality than citizens after entry into care and ART initiation (478). Compared with HIV-positive individuals from the host population in the Netherlands, HIV-positive migrants had poorer treatment outcomes and lower treatment adherence (479). Among asylum seekers in Canada, a retrospective cohort study found that 62% of newly diagnosed HIV infections were in late presenters, and only 45% received care within 30 days of diagnosis (480).

Numerous interventions and policies can be integrated into national health systems to increase testing, reduce late-stage diagnosis and improve treatment access for migrants (see also Chapter 4 on health systems). Evidence from the WHO African Region, WHO South-East Asia Region and WHO Western Pacific Region has shown that introducing diverse opportunities for HIV testing (e.g. rapid or self-testing) can provide useful alternatives for refugees and migrants who have limited access to or low levels of knowledge about local testing sites, or those concerned with stigmatization over seeking HIV services (481–483).

Intervention mapping, or a method for developing health promotion programmes, proved useful in a Ugandan refugee camp; HIV care was integrated with hypertension and diabetes services after involving community members in the implementation and planning process, thus reducing the stigma of treatment for HIV (484). Additional evidence from

Australia suggests that expanding access to ART for all HIV-positive temporary residents can reduce HIV transmission without placing a significant financial burden on the national government (485).

3.7.2 Tuberculosis

Globally, the proportion of TB cases of foreign origin varies considerably, with refugee- and migrant-hosting locations – including Australia and the United States, as well as western European countries – reporting higher proportions of foreign-origin cases, as illustrated in Fig. 3.7 (486).

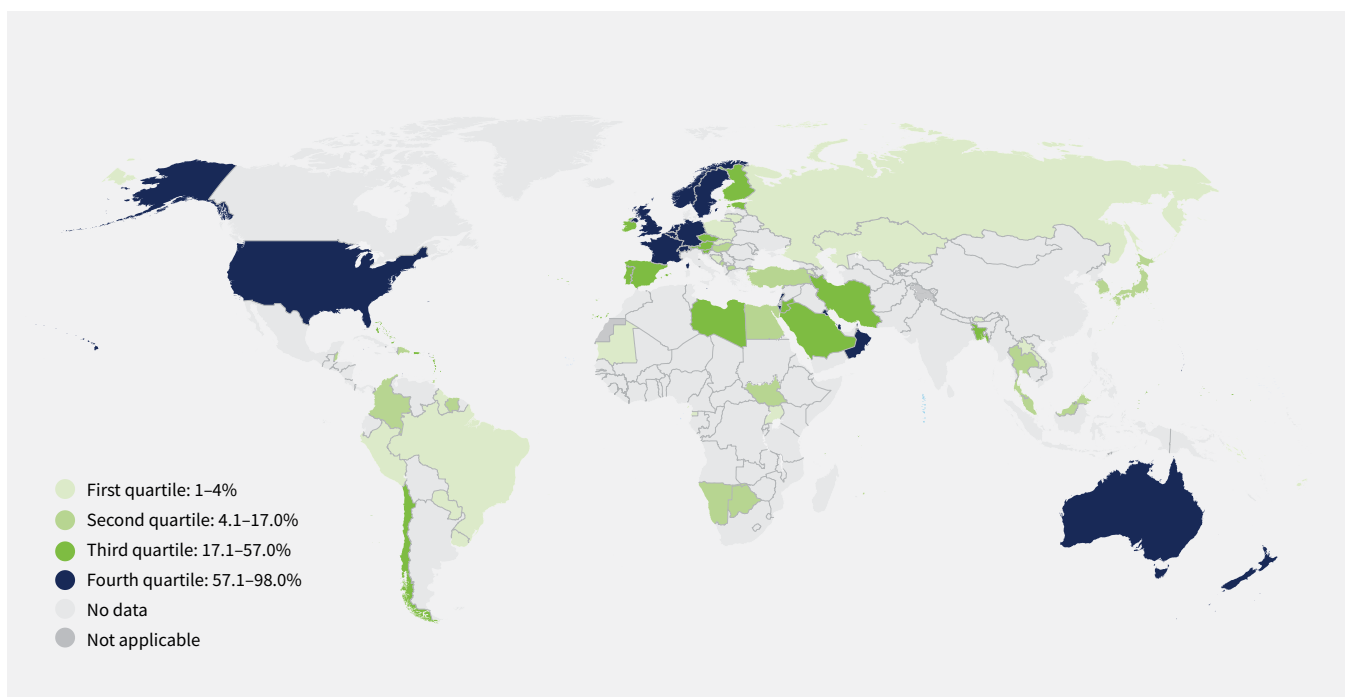
Refugee and migrant populations experience a range of living conditions that often make them more vulnerable to TB transmission, including overcrowding, poorly ventilated living quarters, suboptimal shelters made with air-impermeable plastic sheets, informal settlements and unstable housing (see also Chapter 2 for a

description of housing and living settings as a health determinant) (487,488).

However, studies demonstrate that, while risk of TB transmission is increased within migrant communities and households, there is no increased risk of TB transmission to host populations. Where there is a functioning surveillance system and a universal public health system that includes migrants, there is low risk of transmission from migrant populations to host populations (489).

Foreign-born patients with TB represent 8.7% of all TB cases in the WHO European Region in 2019, although this varies widely between EU and European Economic Area (EEA) countries (34.5%) and non-EU/EEA countries and areas (2.2%) (490). There is also high variability between countries: the proportion of TB cases of foreign origin is high in Malta (95.9%) and Luxembourg (90.0%), but low in Bulgaria (0%)

Fig. 3.7. Proportion of TB cases among foreign-born individuals, 2020



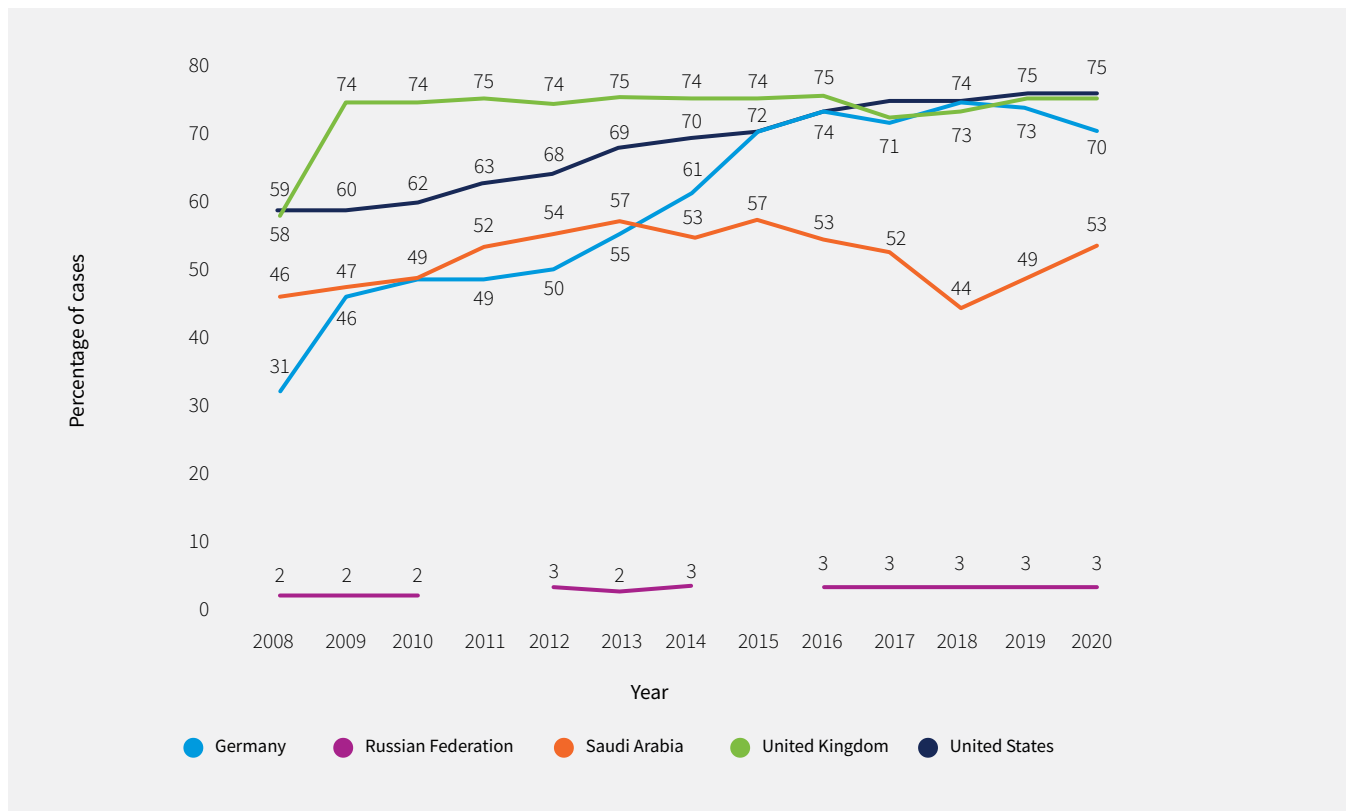
Source: WHO (483).

and Romania (0.4%) (note that Romania has the highest incidence of TB cases in EU/EEA countries at 66 per 100 000) (490). In Jordan, 29.3% of TB cases among Syrian refugees are in refugees residing in camps, despite the fact that only a small proportion of all Syrian refugees (17.1%) reside in camps (491).

Fig. 3.8 illustrates the changing proportion of TB cases that were of foreign origin in the five most popular destination and host countries for migrants during 2008–2020 (486). Although four of these countries (Germany, Saudi Arabia, the United Kingdom and the United States) showed a trend of a slow increase in the proportion of TB cases of foreign origin, the proportion remained almost unchanged in the Russian Federation during 2008–2020 (492).

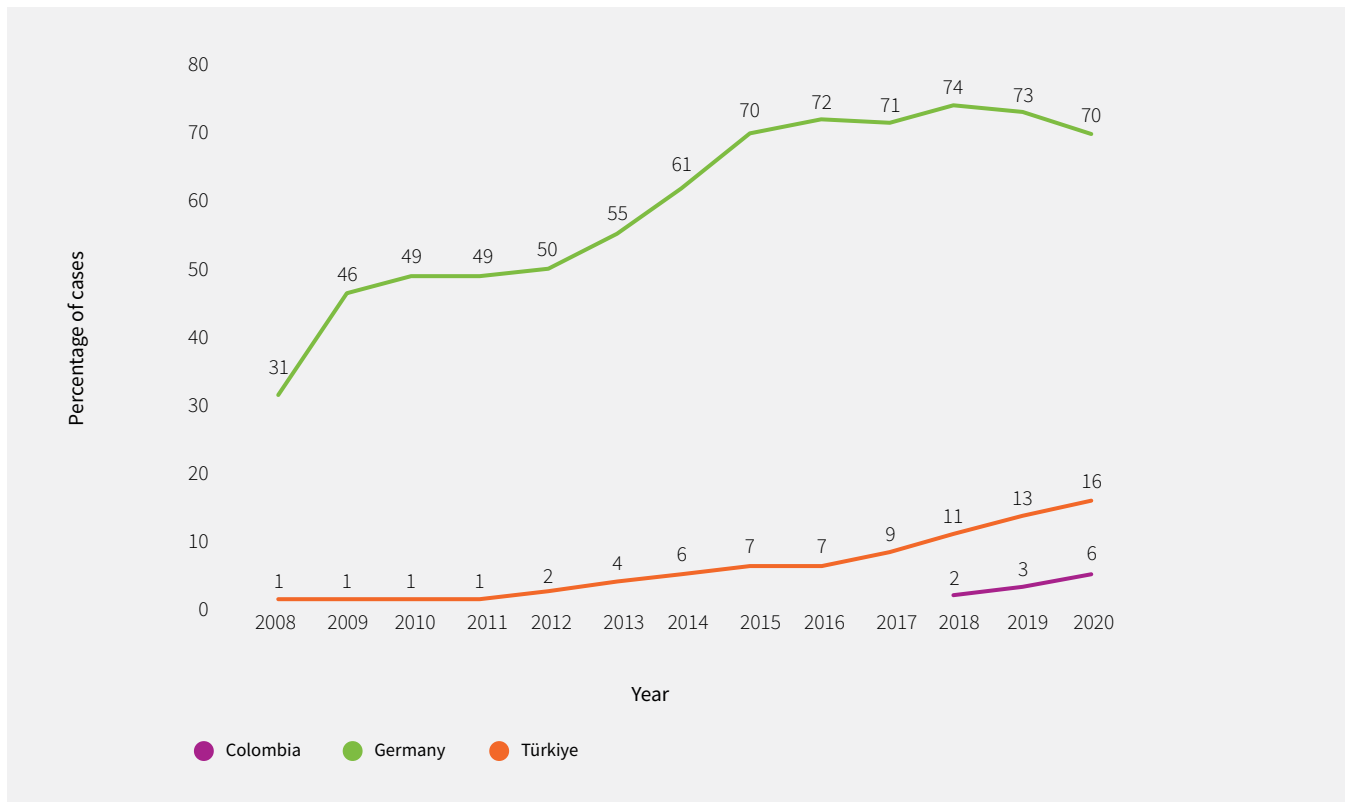
Fig. 3.9 depicts the changing proportions of new TB and retreatment of relapsed TB occurring in people of foreign origin in the countries hosting the largest (Germany; 2008–2020), second largest (Türkiye; 2008–2020) and fifth largest (Colombia; 2018–2020) number of refugees. The data indicate a steep increase in the proportion of TB cases occurring in people of foreign origin in Germany and Türkiye during 2008–2020. Data from the third- and fourth-largest refugee-hosting countries, Pakistan and Uganda, were not available: Pakistan does not currently collect or report TB data disaggregated by foreign-born individuals, and data from Uganda were available only for 2020 (3%). Germany is the only country to be included within the five most popular destinations for both refugees and migrants;

Fig. 3.8. Proportion of TB cases attributable to foreign-born individuals in the five top destination countries for international migrants, 2008–2020



Source: WHO (483).

Fig. 3.9. Proportion of TB cases attributable to foreign-born individuals in three of the five top destination countries for refugees, 2008–2020



Source: WHO (483).

the proportion of TB cases in Germany occurring in refugees and migrants was 70% in 2020.

The numerous challenges to be faced along the displacement and migration pathways can simultaneously increase the vulnerability of refugees and migrants to TB and limit their access to care. As for HIV, treatment interruption poses a major risk and can contribute to drug resistance. Factors such as deportation, low levels of screening and exposure to medical and social risk factors can complicate the detection and successful treatment of TB for refugee and migrant populations (493–497).

As observed in migrants along the Thailand–Myanmar border, the ability to manage the

condition is affected by the expensive and arduous cross-border migration between countries with different burdens of TB; the unavailability of appropriate treatment regimens at various stages of migration; and interrupted, unsuccessful or unaffordable treatment (498). The nature of the disease, coupled with an increased risk of exposure to other communicable diseases, also increases the coinfection risk for migrants (Box 3.4) (499–501).

Box 3.4.

Coinfection with tuberculosis and HIV

Sub-Saharan Africa experiences the largest burden of TB and HIV, accounting for two thirds (67%) of the population living with HIV globally in 2020 and 95% of global TB deaths. Infection with HIV is a known risk factor for new infection with *Mycobacterium tuberculosis* and for progression of latent tuberculosis (TB) to active disease (492,499,502). TB–HIV coinfection accelerates the decline of immunological functions if untreated and makes both harder to treat. TB–HIV coinfection is of particular concern among refugee and migrant populations. Data from refugee camps in Ethiopia indicate that HIV infection is associated with unsuccessful TB treatment outcomes (500). Evidence from the Gambella region in Ethiopia further supports these findings; a retrospective study comparing treatment outcomes for TB found lower treatment success rates (74.2%) in refugees than in surrounding communities (88.1%), while rural, female and HIV-negative patients with TB were more likely to be successfully treated than their respective counterparts (i.e. urban, male and TB–HIV-coinfected patients) (501). A high prevalence of HIV (24.2%) has been reported in communities in southern Mozambique, the origin of migrant miners. A further 7.5% of miners within these communities have reported previous TB infection, a major concern because many display limited knowledge of TB prevention methods as well as low levels of condom use (57).

Multidrug-resistant TB, LTBI and

extrapulmonary TB. Various forms of TB affect refugees and migrants on a regional level, with notable trends varying across the WHO regions. Drug-resistant TB is a prominent emerging concern for migrant and displaced populations in many regions (458,503–507).

In EU and EEA countries, the highest prevalence of multidrug-resistant TB and extensively drug-resistant TB was observed among migrants of non-EU/EEA origin (508). In the United States, migrants present with greater resistance to anti-TB medicines compared with the local population, although this varies by regional origin and type of medicine. Compared with the local population, migrants from Latin America have TB with more resistance to pyrazinamide, and migrants from other subregions, including southern Asia, Asian–Pacific and eastern European countries, have TB with higher

resistance to ethambutol (509). Similarly, newly arrived migrants in Qatar are more likely to have drug-resistant TB than the local population (510).

There is limited evidence about how refugee and migrant populations are affected by extrapulmonary TB, although its lower prevalence in migrants (16.7%) in Saudi Arabia compared with the host population (83.3%) has been reported (511,512). However, evidence from Ethiopian refugee camps has indicated a slightly higher prevalence of extrapulmonary TB in refugees (22.8%) compared with populations in surrounding communities (18.2%), as well as higher risk of unsuccessful treatment outcomes (501). According to a cross-sectional analysis of 23 years of data (1995–2017) from 32 countries in the WHO European Region, the proportion of extrapulmonary TB among all cases of TB is greater among migrants (45.2%) than among

non-migrants (21.7%) (513). Extrapulmonary TB is linked to risk factors such as extremes of age (children and older adults), female sex, HIV-positive status, comorbidities (e.g. chronic renal disease and diabetes) and coming from countries with a high TB incidence rate.

Throughout the WHO Western Pacific Region, TB cases attributed to the reactivation of LTBI in migrants from high-incidence countries is a growing concern for low-incidence countries. In Australia, 34.4% of LTBI cases in 2016 were estimated to have occurred in migrants who had migrated since 2007, mostly from China, India and the Philippines, with new migrants who were younger than 35 years making up 16.3% of those with LTBI (514). Similarly, in Singapore the prevalence of LTBI was higher in migrants from India (30.8%) and China (17.1%) than for Singapore-born study participants (10.7%) (515). Further evidence from Japan suggests that migrant populations faced a greater risk of interrupting their LTBI treatment and being lost to follow-up (516).

As a result of the high prevalence of LTBI among migrants, it has been suggested that low-incidence countries should make screening for LTBI a top priority. This has been implemented in the WHO European Region, where 22 of the 36 countries assessed were found to include LTBI screenings in refugee centres (517). However, this approach is complex since evidence indicates that mass population-wide LTBI testing and treatment are not feasible because of imperfect tests, stigma around screening, the risk of serious or fatal side-effects from treatment, and high costs for an unproven public health impact. Current guidance, including that of the European Centre for Disease Prevention and Control, indicate targeting LTBI screening at individuals from countries with higher TB incidence (518).

Therefore, a comprehensive package of interventions is necessary, including testing relevant individuals, ensuring consistent monitoring and evaluation of TB interventions, and delivering safe and effective treatment regimens with no (or minimal) risk of adverse events (519–521). Interventions should also include public health services that specifically include refugees and migrants as well as testing and treatment focused on mobile populations.

Various studies and analyses have been conducted to determine the feasibility and effectiveness of different TB programmes. A study in Canada highlighted the cost-effectiveness of pre-immigration LTBI screening for migrants moving to low-incidence countries (522). Evidence from the United Kingdom supports multidisease screening – combining testing for LTBI, HIV, HBV and hepatitis C virus (HCV) – indicating it is not only feasible but also needed, considering the high proportion of previously unscreened migrants (523). In response to the lack of evidence for the cost-effectiveness of screening migrants for TB, a European database of multicountry evidence has been established (524). A study of TB prevalence among visa applicants to Australia – predominantly young adults from various Asian countries – reported that prevalence among this group was declining and likely to remain low. The study concluded that Australian support for TB control programmes overseas and preventive interventions were likely to have the greatest impact on the domestic TB burden (525).

Consistently, studies have shown that the various types of TB disproportionately affect refugees and migrants. In Spain, a retrospective observational study of people with spinal TB found that the percentage of these who were foreign born increased from 14% to 45.2% over 10 years (526). According

to one study, 90% of all cases of bone and joint TB in the United Kingdom occurred in migrants, with many experiencing treatment delays between the onset of symptoms and referral to a tertiary orthopaedic centre (527).

Also in the United Kingdom, a retrospective study concluded that 93% of patients with intestinal TB were born abroad, primarily in Africa and the Indian subcontinent; however, diagnosis is challenging and often delayed (528). Among Syrian refugees with pulmonary TB in Türkiye, higher numbers of patients stopping or transferring treatment were reported and fewer Syrian patients were successfully treated (63.6%) compared with Turkish patients (88.8%) (529).

3.7.3 Malaria

Displacement and migration are critical when considering the control of malaria, particularly in low-transmission or non-endemic countries where imported cases can present additional challenges to diagnosis and treatment, such as in refugee transit or reception centres or in labour migrant contexts.

Conversely, refugees and migrants moving to areas of high transmission of malaria from non-endemic areas are at a higher risk of developing severe forms of malaria.

Notably, the WHO European Region and WHO Eastern Mediterranean Region demonstrate interregional transmission of malaria, with countries reporting an increase in imported malaria cases (530–534). In the WHO European Region, the re-emergence of cases of malaria has been attributed to people in transit from sub-Saharan African countries and to malaria occurring in refugees and migrants from countries where the disease is prevalent (535–538). In the WHO Eastern Mediterranean Region, low- and zero-incidence countries, such as Kuwait, Qatar and Saudi Arabia, have experienced increased numbers of cases

of malaria among migrants, underscoring the importance of having national malaria surveillance systems in place to detect areas of concern (539–541). Evidence from Henan Province in China, which has been in the malaria elimination stage since 2010, illustrates these risks: more than 90% of imported malaria cases have occurred in labour migrants from Africa, primarily Angola, Equatorial Guinea and Nigeria (542). Similarly, evidence from Nepal shows that more than half (54.1%) of cases of malaria occurring in border districts are imported (543).

Research from the WHO South-East Asia Region indicates that refugee and migrant populations face multiple barriers to accessing health care for malaria, such as reduced access to health facilities, including issues with distance and lack of transportation; a lack of awareness of health services, particularly the availability of free testing and treatment for malaria, as well as low levels of health literacy; and the perception that screening is necessary only for the unwell (543–545).

There is ongoing intraregional transmission of malaria in the WHO African Region and WHO Region of the Americas where, for example, Venezuelan refugees and migrants in Colombia are seeking health care services for malaria in increasing numbers (546), and the transmission of malaria in refugee camps in Ethiopia and Uganda continues to particularly affect young children, especially those under 5 years of age (547–549).

Fig. 3.10 shows the incidence of malaria among refugees in Ethiopia, Kenya, Sudan and Uganda from 2015 to 2020, as recorded by the Integrated Refugee Health Information System (also known as the iRHIS) (550). The incidence of malaria among refugees remained relatively constant in Ethiopia and Sudan, declining only slightly from 2015 to 2020. However, an

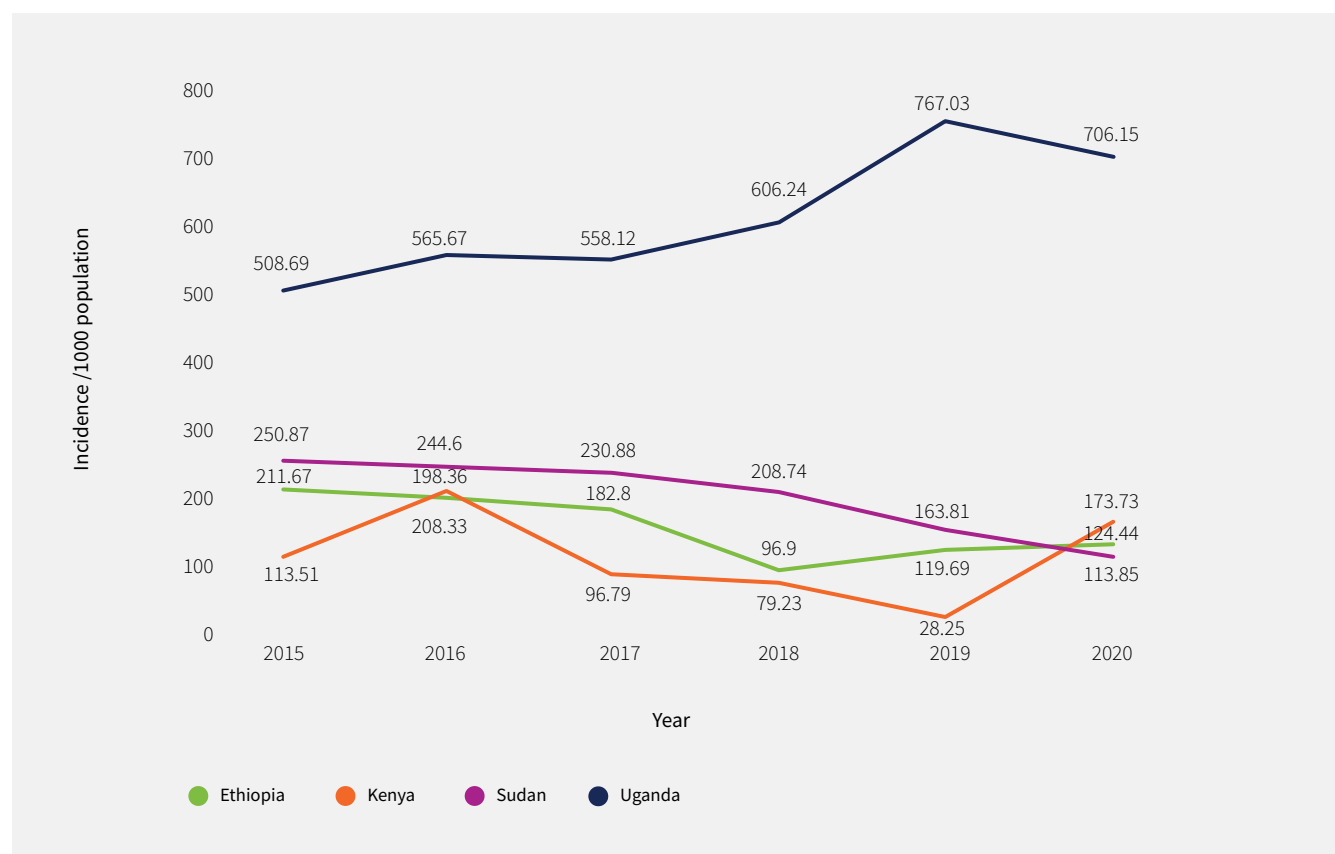
increase in incidence was observed in Kenya from 2019 to 2020, following a steady decline during previous years. A gradual increase in malaria incidence was reported in Uganda from 2015 to 2019, with a slight decrease in 2020.

According to data from the Standardized Expanded Nutrition Survey (551), there was a sharp decline in the proportion of households with at least one long-lasting insecticide-treated net in refugee camps in Kenya from 2018 to 2019 (Fig. 3.11). Although the data sets in Fig. 3.10 and Fig. 3.11 are of different types, and a decrease in the incidence of malaria cannot be directly associated with increased use of the long-lasting insecticide-treated net, the nets are one of the interventions

proven to combat malaria. These data indicate the need for further interventions to convert available knowledge into practice.

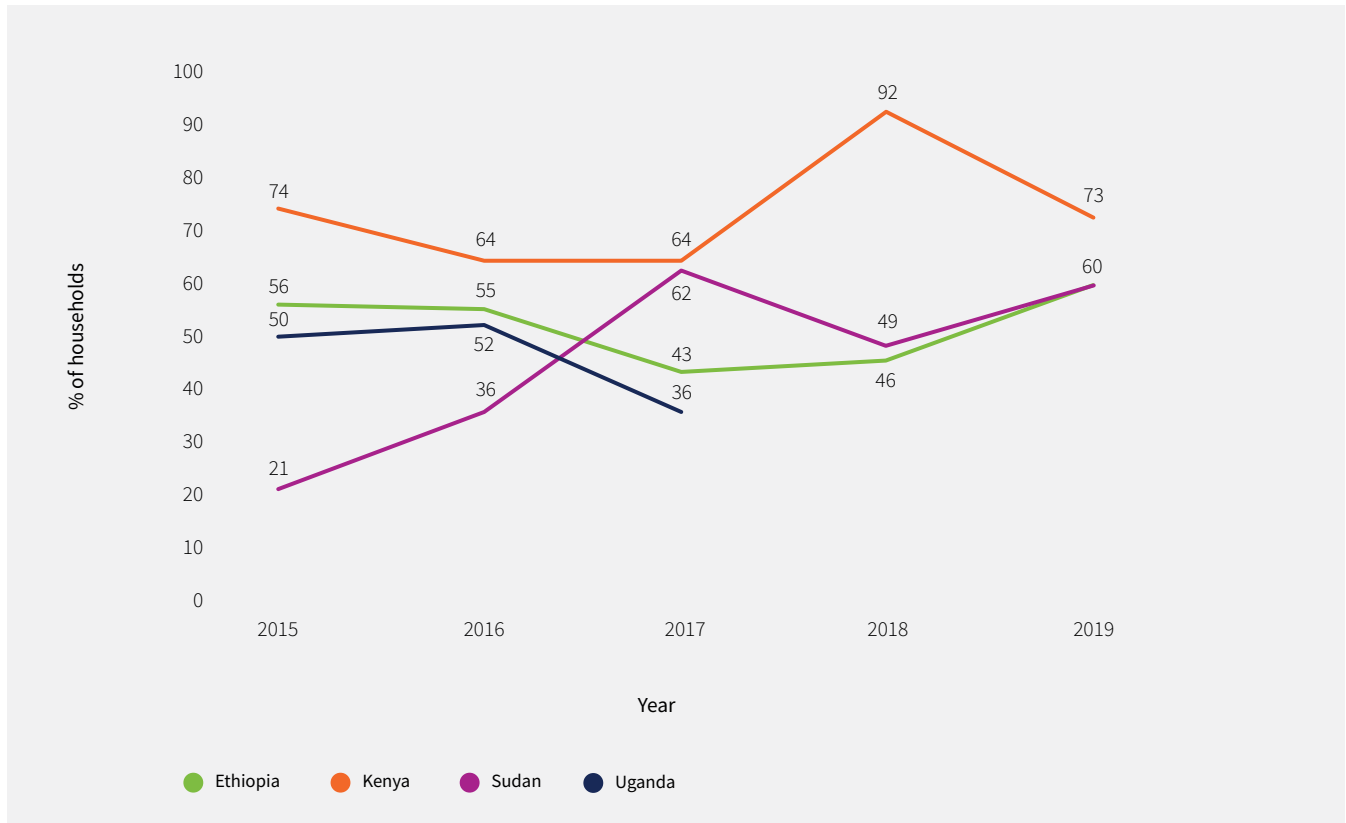
Geography and type of employment often influence, and can increase, the risk of malaria for refugee and migrant populations. In the Greater Mekong subregion of south-east Asia, migrants employed as rubber tappers, forest workers, miners, military personnel and farmers often work near border regions and forest fringe areas that are highly receptive to malaria, such as the Thailand–Myanmar border (552–554). Refugee and migrant workers have limited access to health care facilities and usually receive late and/or substandard treatment for malaria. Government policies may not always include malaria as an

Fig. 3.10. Incidence of malaria among refugee populations in Ethiopia, Kenya, Sudan and Uganda, 2015–2020



Source: UNHCR, unpublished data.

Fig. 3.11. Proportion of households owning at least one long-lasting insecticide-treated net in selected refugee camps in Ethiopia, Kenya, Sudan and Uganda, 2015–2019



Source: UNHCR (545).

occupational health concern, meaning that migrant workers can be excluded from malaria prevention and treatment services available under the labour laws of a host country (555,556).

In the WHO African Region, increased elevation also appears to be associated with a higher burden of malaria, as observed in the elevated Kiziba refugee camps in Rwanda and in migrant labourers in north-western Ethiopia; evidence has suggested that labourers in highland areas are 2.34 times more likely to develop malaria than those in lowland areas (557,558).

3.7.4 Other communicable diseases

Other communicable diseases affect refugees and migrants on a regional or more local level,

and there are gaps in the data that reveal the need for increased diagnosis, testing and surveillance to contain transmission and provide treatment. Several diseases affect refugee and migrant populations across the WHO regions, including leprosy in islands off the coast of eastern Africa (e.g. the Comoros archipelago, Madagascar, Mayotte and Réunion), strongyloidiasis in migrants from Latin America in the United States and Europe, and dengue and chikungunya in migrants in Qatar (559–561). Hepatitis, leishmaniasis and Chagas disease are briefly discussed in this section, as they continue to affect refugee and migrant populations across several WHO regions. Additional waterborne, tropical and parasitic infections known to affect refugees and migrants are also briefly discussed.

Hepatitis. Throughout the regions, refugees and migrants consistently have a higher prevalence of hepatitis than their host country counterparts.

In data collected from a sample of the pre-entry health assessments conducted on all refugee applicants to the United Kingdom as part of their resettlement, the positivity rate for HBV infection was found to be the highest among the communicable diseases assessed (2.04% of the cohort), with risk factors including sub-Saharan African origin and a history of blood transfusions (562). In Canada, a higher prevalence of HCV infection was detected in migrants than in non-migrants, with migrants having a seroprevalence 1.5–1.7 times higher than the host population (563). Among undocumented migrants and uninsured legal residents in the Netherlands, one study found a higher prevalence of chronic HBV and HCV infections than in the host population, with many cases being newly diagnosed (564). In Thailand, migrant sex workers have a higher prevalence of HBV infection (11.4%) than that observed in the general population (4%) (74); in the EU/EEA, the HBV prevalence for migrants from endemic regions is 5% compared with 1% in the general population (74,565).

A review of national policies and guidelines for delivering TB, HIV, HBV and HCV services for refugees and migrants in the WHO European Region found that policies are often not in alignment with WHO's recommendations, and services may not always be accessible to migrant populations. For example, France, Italy and the United Kingdom have similar HBV screening policies; however, screening and testing may not always be routine, and can depend on the judgement of a physician (566). In Italy, thresholds are reported for both HBV and HCV (566).

In the WHO Eastern Mediterranean Region, hepatitis E virus antibody-positive cases are nearly double (22.9%) in non-Qataris than in the host population (11.5%) (567). In Lebanon, outbreaks of hepatitis A virus infection have been associated with the Syrian refugee crisis, particularly in the settlement areas in the Beqaa and North governorates (568). This highlights the need for greater surveillance efforts in the Region in addition to vaccination and sanitation efforts to prevent further outbreaks. A small pilot study among Rohingya refugees in Bangladesh found a prevalence of HCV infection that was 10 times greater than that of the host population, highlighting the risk of severe liver disease in the long term in this migrant group (569).

A lack of awareness or knowledge of hepatitis was reported as a key risk factor among refugees and migrants in several studies. In Ethiopia, 86.5% of refugees in the Gambella Region did not know how HBV and HCV infections are transmitted, and 86.8% were unaware of the availability of the HBV vaccine (570); this lack of knowledge was of major concern as, in this study, the overall prevalence of the HBV surface antigen (HBsAg, indicating infectious disease) and HCV antibodies among refugees was 7.3% and 2.0%, respectively. Similarly, in Australia limited knowledge of the types of hepatitis, as well as transmission and treatment for the disease, was reported among Arabic- and Assyrian-speaking migrants; most strikingly, community health workers (CHWs) were found to have little knowledge of HBV infection (571).

Leishmaniasis. Leishmaniasis, a neglected tropical disease, has been identified in refugee and migrant populations in the WHO African Region, WHO Region of the Americas, WHO European Region and WHO Eastern Mediterranean Region. It has also been diagnosed among refugees in Türkiye, Syrian

refugees in Jordan, Venezuelan migrants in Brazil and agricultural migrant labourers in north-west Ethiopia: coinfection with malaria and visceral leishmaniasis was also diagnosed in Ethiopia (572–575).

Various changes in disease patterns have been noted, including visceral leishmaniasis changing from endemic to a sporadic form among migrants in rural parts of the Islamic Republic of Iran, as well as high rates of cutaneous leishmaniasis in migrants in Saudi Arabia (576–578). Timely diagnosis can be complicated by the introduction of locally uncommon species of leishmaniasis following intraregional migration, and various socioeconomic and environmental factors can lead to complex clinical presentations, requiring frequent and repeated systemic treatment (579,580).

Chagas disease. Chagas disease, a parasitic disease endemic in Latin America, has had regional implications for migrant populations in the WHO Region of the Americas and the WHO European Region as it is estimated that many infected with this neglected tropical

disease are undiagnosed (581,582). Challenges to early detection include the high proportion of asymptomatic cases, but there are also policy barriers to health services for this disease (583).

For example, research suggests that Bolivian migrants in Brazil have faced obstacles to accessing Chagas-related services, such as language barriers and requirements for identity documents, but also current approaches to the disease do not consider the distinct epidemiological profiles of different groups (584). Access to screening and care is particularly important for Bolivian migrants in Brazil, since research suggests that a history of rural jobs in the Plurinational State of Bolivia is significantly associated with the disease (585).

Migration from Latin America to Europe has raised concerns over diagnosis and treatment of Chagas disease. Of concern is the high prevalence among Latin American migrants in Europe compared with Latin Americans in their country of origin. For example, prevalences of 18.1% and 5.5% were recorded among migrants from the Plurinational State of Bolivia and Paraguay, respectively, higher than their national prevalence estimates (586). Further, 43% of identified cases in Europe are among people living in Spain (587).

However, comprehensive public health approaches can have a positive impact. For example, improved rates of screening among Bolivians in Madrid were associated with people having received information about Chagas in Spain and being advised to test, especially if the advice was provided by a medical professional (588).

Recent research from across WHO regions indicates that various refugee and migrant groups, including children, have experienced a disproportionate burden of COVID-19, often exacerbated by socioeconomic and health system factors.

Waterborne, tropical and parasitic

infections. Several waterborne, tropical and parasitic infections affect refugees and migrants, with specific subpopulations at higher risk. In the WHO African Region and WHO Region of the Americas, cholera and diarrhoeal diseases affect refugee and migrant groups, with a particularly high prevalence reported in children under 5 years of age (126,589,590): for example, children in refugee camps in Kenya who are younger than 5 years were reported as having a risk of cholera that was 51% higher than for children aged 5 years and older (591).

Factors contributing to an increased risk of childhood diarrhoea include a lack of proper handwashing facilities, consumption of surface water and the lack of a latrine, as indicated in the context of a refugee camp in Ethiopia (592).

Regarding parasitic infections, refugees and migrants are at risk of a variety of infections, including helminth infections among TB-positive refugees in the United States, *Cryptosporidium* spp. infections among migrant workers in Qatar and schistosomiasis among asymptomatic Eritrean refugees in Europe (593–595). Refugees and migrants in sub-Saharan African countries continue to be at risk for infection from tropical and other communicable diseases, including leprosy, Rift Valley fever and trachoma (559,596–598).

3.8 COVID-19

- There are increased risks for SARS-CoV-2 infection and severe COVID-19 among some refugees and migrants, especially for those who live in crowded conditions, have occupations in which working from home is not possible, and live in countries where national and local policies exclude refugees and migrants from pandemic-related health services.
- Positive examples exist from countries that include and encourage refugees and migrants, regardless of status, to get tested and vaccinated and seek health care.
- The indirect impacts of the COVID-19 pandemic are significant, including loss of income, being stranded by travel restrictions, having limited access to information due to language and other barriers and facing discrimination.
- Financial barriers, language barriers, fear of deportation and lack of trust in health care services prove to be significant barriers for refugees and migrants in seeking health care, including for suspected COVID-19.
- Where essential health care workers include significant numbers of migrants, such workers were at a much greater risk of severe COVID-19 than non-essential workers.

The COVID-19 pandemic has exposed vulnerabilities and exacerbated inequalities within and between all countries. The pandemic has been very hard on the poor, who have experienced higher rates of infection, hospitalization and death than the wealthier. They have also been hit particularly hard by the economic slowdowns associated with restrictive measures.

Among the most adversely affected people have been refugees and migrants, who have been disproportionately and systematically disadvantaged with respect to social standing and economic and political power, often experiencing crowded work or living conditions over which they have no effective control, and who have had less access to vaccinations and health care.

3.8.1 Burden of disease

Recent research from across WHO regions indicates that various refugee and migrant groups, including children, have experienced a disproportionate burden of COVID-19, often exacerbated by socioeconomic and health system factors (599–605). Older refugees and migrants are at particular risk because of the nature of the disease and their migratory status, particularly those in transit or irregular situations (606,607).

In June 2021, the European Centre for Disease Prevention and Control identified occupational risk, overcrowded accommodation in camps and closed settings (including detention and reception centres), and lower levels of accessibility of public health services as the main risk factors for refugee and migrant exposure to SARS-CoV-2, and low COVID-19 vaccine uptake in migrants compounding the issue (608). This is consistent with reported outbreaks in WHO European Region detention centres (see section 2.11.2 on immigration detention) and camp-like settings, and in non-closed containment settings, in which transmission is linked to neighbourhood deprivation levels, poor hygiene facilities and limited ability to physically distance or self-isolate (609–612). For example, countries that host large numbers of low-wage migrant workers had a significantly higher proportion of migrants testing positive compared with the host population (613,614).

Conversely, a study investigating the impact of COVID-19 in the Italian reception system for migrants and refugees in the first pandemic wave reported an incidence of cases in line with that of the general resident population in Italy (612).

Refugees and migrants also face additional risks as a result of their living and working conditions. For refugees from Bhutan and Myanmar in the United States who were part of the essential workforce, having an infected family member increased their likelihood of infection by 26.9%, which was of particular concern given that refugee families often reside in multigenerational households (615). Early evidence suggests that COVID-19 transmission was significantly lower than might have been expected among refugees in camps in Bangladesh (616).

However, there are insufficient disaggregated data from which to make generalizations. Moreover, as with most refugee and migrant health concerns, disease transmission is context specific and subject to many determinants (Fig. 3.12) (617).

3.8.2 Health and other impacts

The COVID-19 pandemic has had a variety of indirect effects on the health of refugee and migrant populations across a wide range of sectors. In several high-income countries in the WHO European Region, for example, social distancing and lockdown measures affected the ability of migrants to access social protections, such as furlough-type payments, particularly for self-employed and day labourers (618,619). Other indirect impacts include proliferating restrictive migration measures, such as border closings, the suspension of resettlement programmes and processing of asylum applications (620) and job losses (621–624), which have often exacerbated pre-existing structural inequalities.

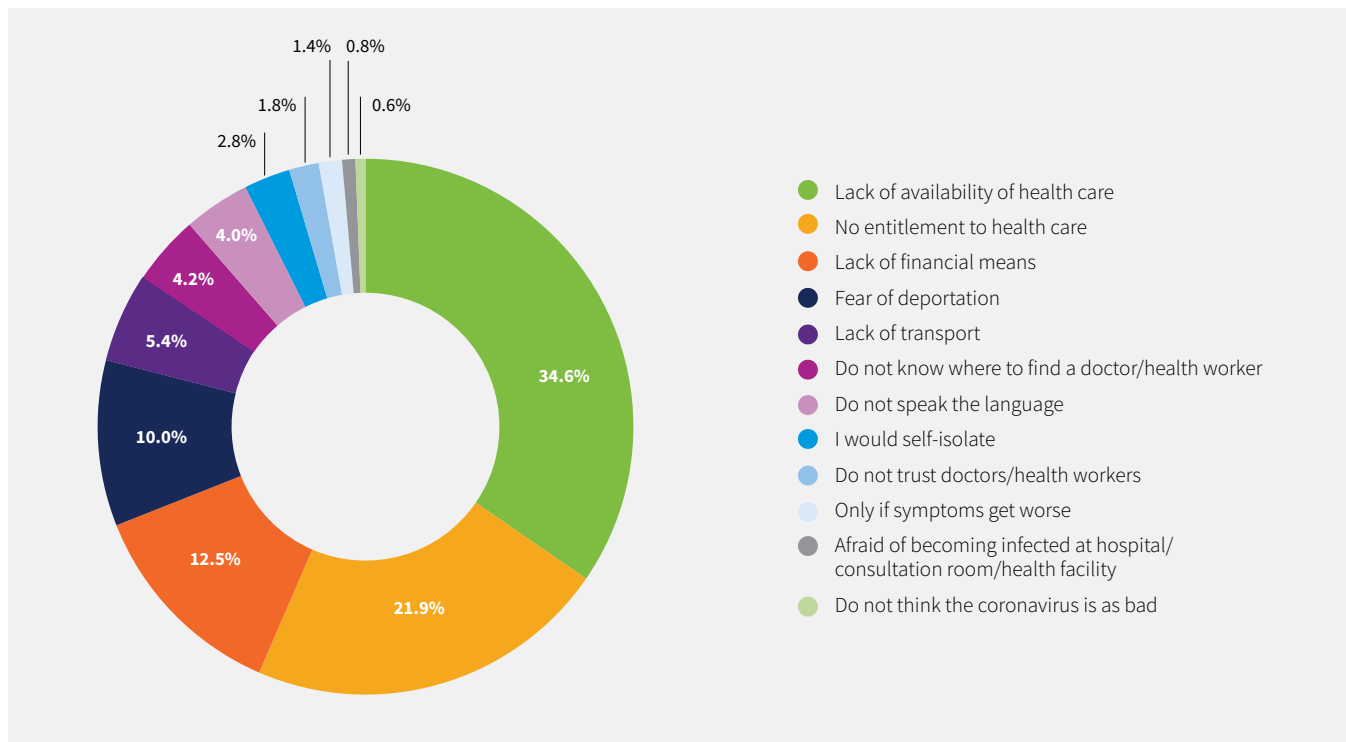
Fig. 3.12. Compounding risks for migrants in the context of COVID-19

Source: International Federation of Red Cross and Red Crescent Societies (610).

In the WHO ApartTogether survey of 30 000 refugees and migrants globally (625), refugees and migrants reported that the COVID-19 pandemic significantly affected their access to work, their personal safety and financial means, as well as their social and mental well-being. Homeless refugees and migrants, refugees and migrants living in insecure accommodation or asylum centres, and irregular migrants reported the worst impacts of the pandemic on their daily lives. The same groups, as well as respondents without any

schooling, were also less likely to seek health care for suspected COVID-19 symptoms. As shown in Fig. 3.13, the main reasons for not seeking health care were financial constraints (35%) and fear of deportation (22%).

Impact on women and girls. There is considerable evidence that refugee and migrant women and girls have been severely affected in many ways, from their mental health to their ability to earn their livelihoods to an increased risk of child marriage (626–631).

Fig. 3.13. Reasons for not seeking medical care in case of suspected COVID-19 symptoms

Source: WHO (618).

A qualitative study on refugee women in Nairobi, Kenya, reported an increase in home deliveries during the pandemic and reduced uptake of ANC services, as well as the uptake of facility-based services becoming more challenging (632).

The United Nations Population Fund reported that the increased poverty and school closures associated with the COVID-19 pandemic led to an even higher prevalence of marriage at a young age in the Middle East and in northern African countries (633). In 2020 it was estimated that half a million more girls were at risk of child marriage because of the pandemic. As many as half of all refugee girls in secondary school will not return when schools reopen; in countries where the enrolment at school of refugee girls is less than 10%, such as Ethiopia and Pakistan, all school-aged girls are at risk of dropping out permanently (630).

The pandemic has also had significant impacts on the trafficking and exploitation of Sri Lankan female migrant workers, as illegal recruiters and traffickers have taken advantage of their increased livelihood insecurity, school closures, and job and income losses (634). A study on SGBV against women in Syrian refugee camps in Jordan provided evidence of a trend of increased violence during the pandemic (635).

Impact on mental health. Refugees and migrants participating in the WHO ApartTogether survey reported a significant impact of the COVID-19 pandemic and associated lockdowns on their mental health conditions (Fig. 3.14). About 50% of respondents reported higher levels of symptoms of depression, worry, anxiety and loneliness, while 20% reported an increased use of drugs and alcohol. Other preliminary evidence supported the finding that the mental

health of refugees and migrants worsened during the pandemic (623,636–640).

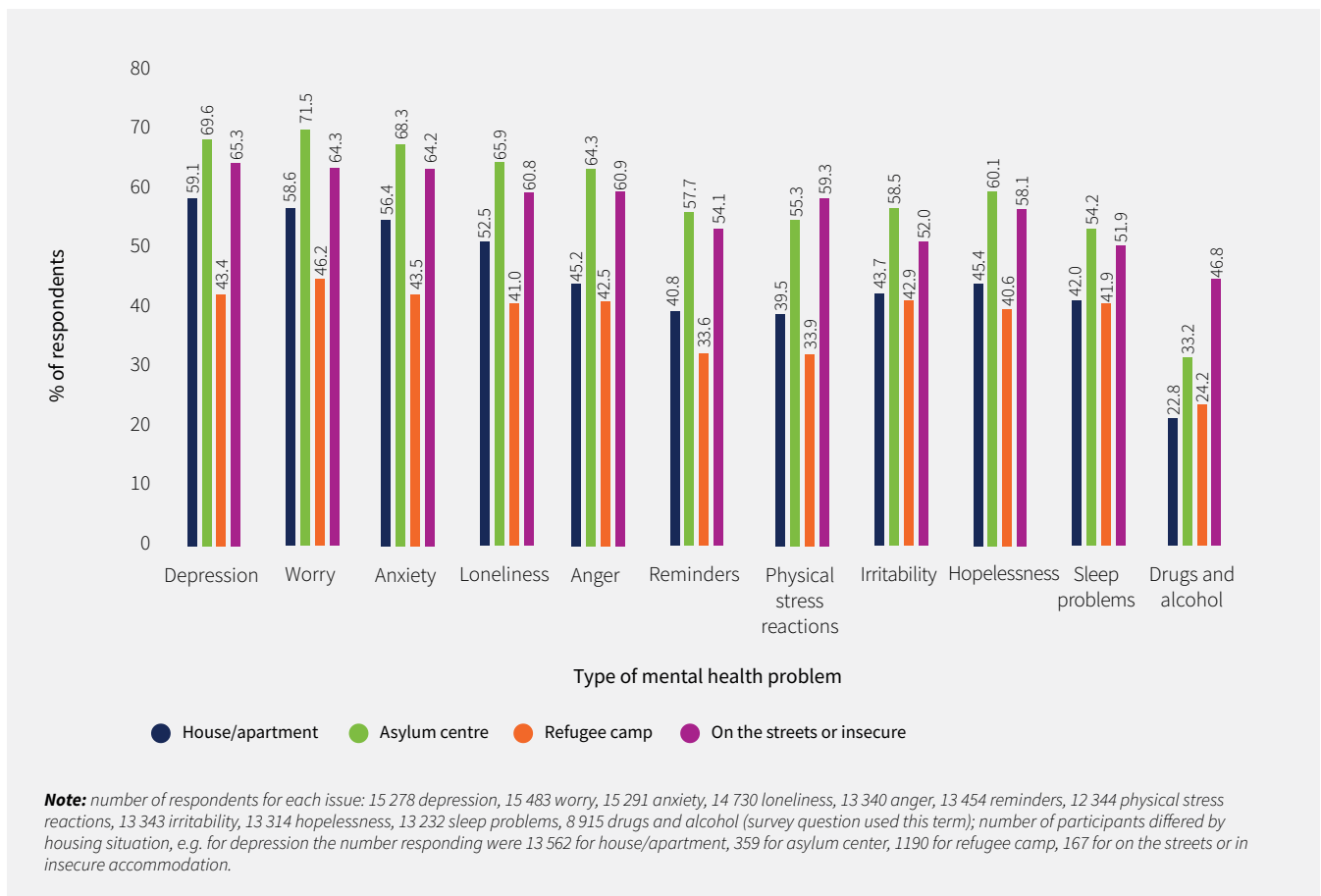
Impact on livelihoods and nutrition.

The indirect or secondary consequences of the COVID-19 pandemic have extended well beyond physical health to have economic, nutritional, educational and security implications. Syrian refugee families in Lebanon have been economically affected, with 80% of breadwinners losing their jobs and 60% experiencing a reduction in wages, leaving many unable to afford basic needs. A total of 70% of Syrian refugee children did not

continue their education at home and experienced behavioural changes because of increased stress and anxiety (621).

Regarding food security, refugee camps in Rwanda experienced a reduction in food rations as a result of declining donations to the World Food Programme (641). In Asia, nearly 660 000 migrant workers were returned to Bangladesh following the outbreak of the pandemic, a further 2 million face possible deportation and at least 71 000 migrants were estimated to have returned to Myanmar by May 2020, primarily from Thailand (642–645).

Fig. 3.14. Migrant and refugee respondents identifying deterioration in their mental health since the beginning of the COVID-19 pandemic, by their housing situation

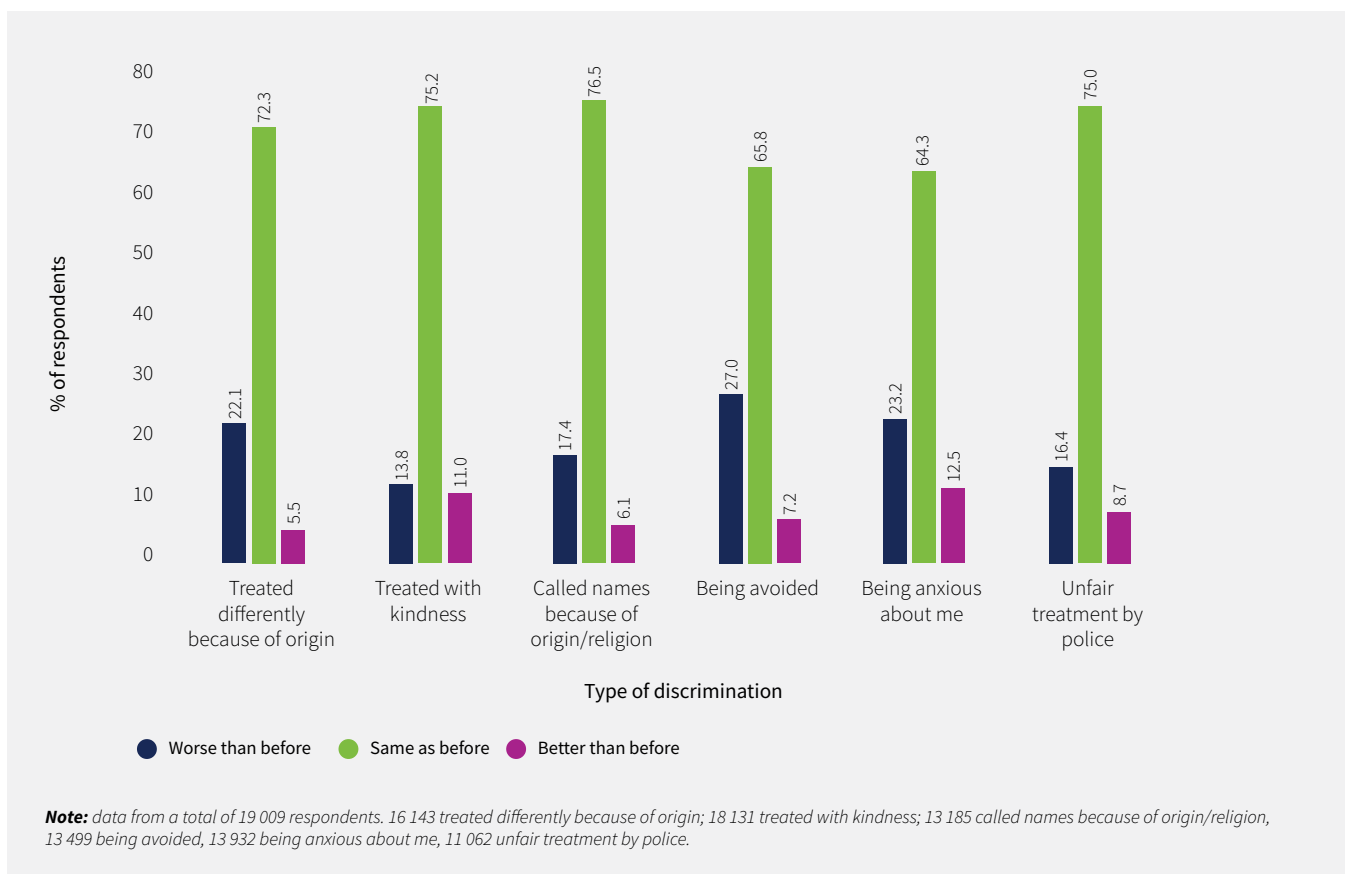


Discrimination and stigma. Refugees and migrants participating in the WHO ApartTogether survey also reported that discrimination increased in the context of the pandemic (Fig. 3.15); this was particularly felt by homeless respondents and those living in insecure accommodation or asylum centres. Other reports also suggest that racism and discrimination increased during the pandemic. For example, discrimination and xenophobia against Asian individuals was reported to have increased in some countries following the virus outbreak in Wuhan, China (646,647).

Restrictions on movement. The COVID-19 pandemic and resulting restrictive migration policies strongly affected global mobility and international migration. Shortly after WHO declared the SARS-CoV-2 outbreak a pandemic in March 2020 (648), many States introduced travel restrictions and border closures.

Mobility restrictions in 2020 during the pandemic can be categorized into three phases. In the first phase (January–March 2020), countries introduced many mobility restrictions in the form of travel bans and health requirements. Borders were closed at an unprecedented level, even within the border-free Schengen area (622).

Fig. 3.15. Migrant and refugee respondents identifying worsening of perceived discrimination because of the COVID-19 pandemic



In April 2020, about 91% of the world's population lived in countries with travel restrictions for non-citizens and non-residents; 39% lived in countries with complete border closure for non-citizens and non-residents (649).

In the second phase (June–September 2020), most countries introduced a staggered reopening. Travel bans were increasingly replaced by health measures, such as COVID-19 tests. However, some island countries, such as Australia and New Zealand, kept their borders closed to pursue an elimination strategy against the virus. In the third phase (October–December 2020), countries responded to new outbreaks and virus mutations. Health certificates were increasingly introduced as new travel measures, while screening and quarantine requirements were increasingly phased out. Because of new virus mutations, restrictions were imposed on travel from South Africa and the United Kingdom. These measures continued into the first months of 2021 (622).

UNDESA estimated that by mid-2020 the number of migrants globally decreased by 2 million. This corresponds to a decrease of 27% in the expected growth between July 2019 and June 2020 (650). Member States of the Organisation for Economic Co-operation and Development (OECD) reported that the number of new residence permits granted to migrants dropped by an average of 46% in the first half of 2020 (651). Similarly, refugee flows were affected. In the first half of 2020, 586 100 new claims for asylum were submitted globally, corresponding to 32% less than during the same period in 2019. Resettlement numbers dropped even more significantly in the first half of 2020 (by 46%) compared with the same period in 2019 (652).

Many labour migrants were not able to return to their countries of origin during

the pandemic, a serious burden for those who had lost their jobs. The IOM estimated that at least 2.75 million migrants were stranded as of July 2020 (653), some without sufficient resources or access to consular assistance and at risk of losing their legal status (622). Many migrant workers decided to return to their home countries out of fear of a worsening COVID-19 situation, job loss, expected job loss or expiration of their work permit. However, particularly during the first months of the pandemic in 2020, many migrant workers were not able to return because international flights were reduced or cancelled, and home governments were not accepting large numbers of returnees (654).

Irregular migration continued throughout the pandemic, but at lower levels than would normally have been observed (655). Many risks of the journey were exacerbated; for example, fewer search and rescue operations were running and border closures often resulted in individuals travelling by more dangerous routes.

Impact on working and living conditions.

Refugees and migrants living and working in crowded settings were particularly exposed to SARS-CoV-2 infection. Outbreaks were reported globally in different refugee camps, shelters, accommodation facilities for migrant workers, and reception and detention centres (614,656–658). Because of the crowded settings, refugees and migrants may not have been able to follow prevention measures, such as hand hygiene, social distancing or self-isolation for symptoms and infection (609,656,658,659). Data on the spread of SARS-CoV-2 in refugee camps are scarce, although some reports indicated that the number of cases in refugee camps remained lower than projected. Reasons for this could be the isolation of camps from local communities and undertesting (660,661).

However, migrant workers, and particularly low-skilled migrant workers, faced an increased risk of exposure to the virus at their workplaces and dormitories. During the early months of the COVID-19 pandemic in Kuwait, significant spread and clustering events occurred among migrant workers as a result of their poor and densely populated living conditions (662). Data from Singapore show that migrant workers were disproportionately affected by the pandemic, with migrant workers living in dormitories accounting for 93% of the total confirmed COVID-19 cases in that country (614,663).

Refugees and migrants often work in critical sectors, which were strongly affected by the pandemic (664–666). In the United States, 69% of all migrants in the labour force, 74% of all migrant workers with irregular status and 70% of refugees were classified as essential workers, that is, they were employed in sectors such as meat packaging, agriculture, health care, construction, child care or critical retail (667).

Health care workers were disproportionately affected, and contributed substantially to the front line of the COVID-19 response in many countries (658,668). A study of the contributions of migrants in OECD countries cited the examples of Australia and Luxembourg, where 50% of doctors are foreign born, and of Israel and Switzerland, where 30% of nurses are foreign born (669). Of the 20 countries with the highest numbers of COVID-19 cases globally (as of 1 March 2021), seven depend heavily on migrant workers in the health care sector: Czechia, France, Germany, Italy, Spain, the United Kingdom and the United States (669).

A study among different occupational groups in the United Kingdom showed that many essential workers (i.e. those occupations

deemed critical to the COVID-19 response) were at heightened risk of infection and severe COVID-19. At the top of this category, health care workers were found to have a sevenfold higher risk of infection, while social care and transport workers had a twofold higher risk. Further analysis of the data revealed that non-white essential workers had the highest risk of severe COVID-19 (670).

3.8.3 Policy responses

National responses to COVID-19 varied considerably; policies ranged from discriminatory practices, excluding refugees and migrants from access to health care, to inclusive policies, integrating migrants and refugees within COVID-19 responses and protecting them according to international conventions. Although national responses varied, many countries ensured access to health care for all migrants and refugees regardless of nationality and legal status. With regards to legal status and access to the labour market, numerous States followed a flexible approach in terms of administrative migration procedures. Several States suspended forced returns and implemented alternatives to immigration detention, taking into consideration the health concerns of the public (620).

Research from the WHO African Region suggests that previous experience of Ebola outbreaks was beneficial to the response to COVID-19; for example, populations were already familiar with the importance of handwashing; previously established laboratory systems assisted in providing earlier COVID-19 diagnoses; control over irregular border crossings was improved; and health care workers had already received training in both containing transmission of the virus and in understanding how xenophobia and discrimination could affect refugees and migrants during disease outbreaks (671–673).

Countries in the WHO Eastern Mediterranean Region, such as Saudi Arabia and the United Arab Emirates, announced that those with COVID-19 could receive free medical treatment in public health hospitals regardless of their migratory status (674). However, a lack of institutional trust may have deterred undocumented migrants from accessing care in medical facilities because of fears of deportation or arrest (675). The Government of Qatar also declared that migrants who tested positive for SARS-CoV-2 could access free treatment and that migrant workers under quarantine could continue to receive wages, although this may not have occurred in practice (676).

International organizations, including the IOM and WHO, played key roles in Libya in assisting with the preparation of a nine-pillar COVID-19 preparedness and response plan, and in strengthening COVID-19 surveillance by consolidating data from health facilities and migrant sites covered by the IOM Displacement Tracking Matrix (677).

In Latin America, the pandemic revealed and exacerbated the social vulnerability of migrants in various contexts, as well as the impact of non-inclusive public health policies (678). For example, the closing of the border between Colombia and Venezuela might have contributed to negative perceptions of refugees and migrants by portraying them as a source of COVID-19. This, in turn, may have increased their health risks, despite Colombian efforts to promote the health of Venezuelan refugees and migrants (679).

Studies indicate that some Venezuelan refugees and migrants in the region experienced a decrease in access to health care services because of the pandemic. For example, almost half of the 959 individuals included in a study across Colombia, Ecuador and Peru reported that they could access

health care services only for emergencies; a further 16% reported a total lack of access to health services (680). In the town of Tijuana, Mexico, near the border with the United States, migrants reported increased financial and administrative barriers to accessing health care during the pandemic (681).

It is also important to consider the invisibility of migrants in the definition of public and health policies. It has been reported that tightened migration policies in the United States, such as a restrictive interpretation of the Title 42 public health statute (682) and strong migration control measures in Mexico, may have negatively affected not only access to health care but also the migration patterns within the whole region (683).

3.8.4 Testing, treatment and vaccination

Even before the pandemic, vaccine uptake was lower among migrants than in the general population. Accordingly, vaccine hesitancy and structural barriers, such as language and cultural barriers, played a vital part in the COVID-19 vaccine roll out and uptake for migrant communities (684,685). In the United States, a study conducted among Brazilian migrants found that contact testing and tracing for COVID-19 was hindered by fears of deportation, limiting responses to the pandemic and leading to increased infection risks (686). A study from South Africa indicated that non-citizens were largely excluded from the national response to the pandemic, including the responses related to issues of poverty, hunger, the economy and mental health (624).

However, there are positive examples. For example, Australia and Egypt offered free access to COVID-19 testing for migrants, similar to that provided for the host population (617,687). In Australia, this was carried out in collaboration with the Australian Red Cross, and subsequent

treatment was also offered by all states and territories. After large COVID-19 outbreaks in dormitories of migrant workers in Singapore, a national task force to address the outbreak response in the country was launched, deploying on-site medical posts to dormitories to provide testing and screening services (614,663). Countries such as Colombia, Nepal, Peru, Portugal and Türkiye guaranteed refugees and migrants, including irregular migrants and migrants with a pending application, access to health care services including testing and vaccination (620).

There are also examples of national leadership that used the pandemic to expand or improve access to health services for refugees and migrants. During the COVID-19 pandemic, the Ministry of Health of Peru launched a community-based initiative to improve both access to TB screening and active detection of COVID-19 cases within the Venezuelan refugee and migrant population, expanding active case detection efforts for COVID-19 (688). Free UHC for all non-citizens was offered by Saudi Arabia and the United Arab Emirates during the COVID-19 pandemic (674). However, there is evidence that some migrants were hesitant to use such opportunities in these contexts because of fear of identity exposure, arrest or even deportation (675). The United Kingdom has a specific initiative encouraging undocumented migrants and other unregistered migrant groups to register with PHC providers to access the national vaccination programme (689). One of the few nationally representative studies within the WHO Eastern Mediterranean Region explored COVID-19 vaccine hesitancy in Qatar and found that migrants, who account for the majority of the country's population, had a substantially higher intention of avoiding vaccination than the host population, highlighting the importance of specialized outreach to address hesitancy (684).

Unlike the beginning of the HIV epidemic, when refugees were not included in national AIDS control programmes or able to access ART (690), refugees have been included in the COVID-19 planning and vaccination programmes of various countries (691,692). As of November 2021, 128 countries were confirmed to be providing vaccinations for forced migrants, with Jordan being among the first to do so (693).

However, when it comes to routine immunization, gaps in coverage for refugees and migrants persisted even before the pandemic. A study published in 2018 reported that out of 21 randomly selected low- and middle-income countries from the Asia-Pacific Region, only the Maldives, Papua New Guinea and Thailand included migrants in their pandemic influenza preparedness plans (694).

A recent survey conducted by UNICEF found that refugees and migrants were not covered under new or expanded social protection measures related to COVID-19 in half of the 159 countries included in the survey (231). As a response to this issue, the Inter-Agency Standing Committee and partners launched the Humanitarian Buffer mechanism within the COVAX Facility to provide access to COVID-19 vaccines to refugees, asylum seekers, IDPs and other vulnerable and humanitarian populations (695). Through this mechanism, for example, the Islamic Republic of Iran received 1.6 million doses to cover the needs of Afghan refugees in the country (696).

The 2021 WHO publication *Refugees and migrants in times of COVID-19: mapping trends of public health and migration policies and practices* (620) identifies three components necessary for an integrated approach to migration and public health policies in the COVID-19 context: (i) ensuring protection-sensitive access to territory (e.g. enabling

access to territory and asylum procedures for people in need of international protection), (ii) ensuring immigration status flexibility (e.g. facilitating regularization of undocumented migrants to ensure safe and lawful access to health services), and (iii) ensuring non-discriminatory access to health care (e.g. providing equal access to health care for all, regardless of status, nationality, sex or gender, or ethnicity).

3.9 Summary

It is clear that refugees and migrants face poorer health outcomes than people in host countries around the world if the conditions they live and work in are not conducive to good health. However, the threats, risks and vulnerabilities often differ between regions and among groups. It is also clear that poorer health outcomes for refugees and migrants are not universal; research has revealed deviations from this rule in some regions and for some diseases.

Refugees and migrants tend to be employed in low-paid sectors in which their safety and well-being are at risk, the so-called 3D jobs, and in low-paid high-risk sectors in which conditions are poor and they may face risks to physical and mental health, including abuse. All these factors are exacerbated by their lack of social protection.

Across regions, the SRH needs of refugees and migrants are not as well met as they are for host populations, with low awareness and use of contraception, unmet family planning needs, and structural and legal barriers to accessing SRH health care. Refugees and migrants also tend to experience poorer access to MCH services than women in the host country, including low attendance at ANC, hampered by barriers such as out-of-pocket costs, low awareness, low level of education and cultural beliefs.

Refugees and migrants are at particular risk of NCDs; some of these are significant causes of premature mortality, especially where there are barriers to accessing health care. Such NCDs include CVDs, hypertension, diabetes, chronic respiratory disease and cancer, which is often diagnosed late; unhealthy diet, lack of physical exercise, overweight/obesity and use of alcohol and tobacco are risk factors for NCDs.

Although refugees and migrants may experience a wide range of mental health conditions, these vary depending on social and environmental factors, such as the absence of family or social support, discrimination, age, ethnicity and time spent in the host country. Some specific populations are more affected than others, for example, younger people from conflict-affected countries, undocumented children, UASC and older people.

Similar to the rest of the population, refugees and migrants may encounter infectious diseases along their journey. However, they also face additional barriers to receiving timely diagnosis, treatment and care. For example, stigma and discrimination often hamper access to health services related to HIV/AIDS, and the process of migration can make access and adherence to TB treatment more difficult.

Finally, refugees and migrants have been disproportionately affected by the COVID-19 pandemic, which has increased their burden of disease, reduced their income, affected their social and mental well-being and reduced their mobility through travel restrictions.

References

1. Ottawa charter for health promotion. Geneva: World Health Organization; 1987 (<https://apps.who.int/iris/rest/bitstreams/1152389/retrieve>, accessed 29 March 2022).
2. Missing migrants project [website]. Geneva: International Organization for Migration; 2022 (<https://missingmigrants.iom.int/>, accessed 6 February 2022).
3. ILO global estimates on international migrant workers – results and methodology, third edition. Geneva: International Labour Organization; 2021 (https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_808935.pdf, accessed 29 March 2022).
4. Simon J, Kiss N, Łaszewska A, Mayer S. Public health aspects of migrant health: a review of the evidence on health status for labour migrants in the European Region. Copenhagen: WHO Regional Office for Europe; 2015 (Health Evidence Network Synthesis report no. 43; <https://apps.who.int/iris/handle/10665/326345>, accessed 29 March 2022).
5. Abbas M, Kashif M, Balkhyour M, Ahmad I, Asam Z-U-Z, Saeed R. Trends in occupational injuries and diseases among Saudi and non-Saudi insured workers. *East Mediterr Health J.* 2018;24(10):1010–17. doi:10.26719/2018.24.10.1010.
6. Moyce SC, Schenker M. Occupational exposures and health outcomes among immigrants in the USA. *Curr Environ Health Rep.* 2017;4(3):349–54. doi:10.1007/s40572-017-0152-1.
7. Adhikary P, Keen S, van Teijlingen E. Workplace accidents among Nepali male workers in the Middle East and Malaysia: a qualitative study. *J Immigr Minor Health.* 2019;21(5):1115–22. doi:10.1007/s10903-018-0801-y.
8. Tilahun M, Workicho A, Angaw DA. Common mental disorders and its associated factors and mental health care services for Ethiopian labour migrants returned from Middle East countries in Addis Ababa, Ethiopia. *BMC Health Serv Res.* 2020;20(1):681. doi:10.1186/s12913-020-05502-0.
9. Pega F, Govindaraj S, Tran NT. Health service use and health outcomes among international migrant workers compared with non-migrant workers: a systematic review and meta-analysis. *PLOS One.* 2021;16(6):e0252651. doi:10.1371/journal.pone.0252651.
10. Aryal N, Regmi PR, van Teijlingen E, Simkhada P, Adhikary P, Bhatta YKD et al. Injury and mortality in young Nepalese migrant workers: a call for public health action. *Asia Pac J Public Health.* 2016;28(8):703–5. doi:10.1177/1010539516668628.
11. Migrant access to social protection under Bilateral Labour Agreements: a review of 120 countries and nine bilateral arrangements. Report No. 57. Geneva: International Labour Organization; 2017 (ESS Working Paper, no. 57; https://labordoc.ilo.org/discovery/fulldisplay/alma994955792602676/41ILO_INST:41ILO_V2, accessed 29 March 2022).
12. Andrade M, Sato L, Hammad M. Improving social protection for migrants, refugees and asylum seekers in Egypt: an overview of international practices. Brasília: International Policy Centre for Inclusive Growth (IPC-IG); 2021 (<https://www.unicef.org/egypt/media/6881/file/Improving%20social%20protection%20for%20migrants,%20refugees%20and%20asylum%20seekers%20in%20Egypt%20%7C%20Full%20report.pdf>, accessed 29 March 2022).
13. Hargreaves S, Rustage K, Nellums LB, McAlpine A, Pocock N, Devakumar D et al. Occupational health outcomes among international migrant workers: a systematic review and meta-analysis. *Lancet Glob Health.* 2019;7(7):e872–82. doi:10.1016/S2214-109X(19)30204-9.
14. Moyce SC, Schenker M. Migrant workers and their occupational health and safety. *Annu Rev Public Health.* 2018;39:351–65. doi:10.1146/annurev-publhealth-040617-013714.
15. Employment, unemployment, and participation rates by place of birth and sex. International Migration Database. Paris: Organisation for Economic Co-operation and Development; 2021 (https://stats.oecd.org/Index.aspx?DataSetCode=MIG_NUP_RATES_GENDER, accessed 29 March 2022).
16. WHO global plan of action on workers' health (2008–2017): baseline for implementation. Geneva: World Health Organization; 2013 (<https://apps.who.int/iris/rest/bitstreams/1344161/retrieve>, accessed 4 May 2022).
17. Lyu S, Hon C, Chan A, Wong F, Javed A. Relationships among safety climate, safety behavior, and safety outcomes for ethnic minority construction workers. *Int J Environ Res Public Health.* 2018;15(3):484. doi:10.3390/ijerph15030484.
18. Öztaş D, Kurt B, Koç A, Akbaba M. Living conditions, access to healthcare services, and occupational health and safety conditions of migrant seasonal agricultural workers in the Çukurova Region. *J Agromedicine.* 2018;23(3):262–9. doi:10.1080/1059924X.2018.1470048.
19. Biering K, Lander F, Rasmussen K. Work injuries among migrant workers in Denmark. *Occup Environ Med.* 2017;74(4):235–42. doi:10.1136/oemed-2016-103681.
20. Giraud M, Bena A, Mosca M, Farina E, Leombruni R, Costa G. Differences in work injury risk between immigrants and natives: changes since the economic recession in Italy. *BMC Public Health.* 2019;19(1):836. doi:10.1186/s12889-019-7178-2.

21. Saquib N, Zaghoul MS, Saquib J, Alhomaidean HT, Al-Mohaimed A, Al-Mazrou A. Association of cumulative job dissatisfaction with depression, anxiety and stress among expatriate nurses in Saudi Arabia. *J Nurs Manage*. 2019;27(4):740–8. doi:10.1111/jonm.12762.
22. Dhungana RR, Aryal N, Adhikary P, Kc RK, Regmi PR, Devkota B et al. Psychological morbidity in Nepali cross-border migrants in India: a community based cross-sectional study. *BMC Public Health*. 2019;19(1):1534. doi:10.1186/s12889-019-7881-z.
23. Ziersch A, Walsh M, Due C, Reilly A. Temporary refugee and migration visas in Australia: an occupational health and safety hazard. *Int J Health Serv*. 2021;51(4):531–44. doi:10.1177/0020731420980688.
24. Reform of the Kafala (sponsorship) system. Quezon City: Migrant Forum in Asia; Policy Brief No. 2; 2012 (<https://www.ilo.org/dyn/migpractice/docs/132/PB2.pdf>, accessed 20 June 2022)
25. Strauss K, McGrath S. Temporary migration, precarious employment and unfree labour relations: exploring the "continuum of exploitation" in Canada's Temporary Foreign Worker Program. *Geoforum*. 2017;78:199–208. doi:10.1016/j.geoforum.2016.01.008.
26. Binford AL. Assessing temporary foreign worker programs through the prism of Canada's Seasonal Agricultural Worker Program: can they be reformed or should they be eliminated? *Dialect Anthropol*. 2019;43(4):347–66. doi:10.1007/s10624-019-09553-6.
27. Cranford C, Vosko L, Zukewich N. The gender of precarious employment in Canada. *Relat Ind*. 2003;58. doi:10.7202/007495ar.
28. Sidorchuk A, Engström K, Johnson CM, Kayser Leeza N, Möller J. Employment status and psychological distress in a population-based cross-sectional study in Sweden: the impact of migration. *BMJ Open*. 2017;7(4):e014698. doi:10.1136/bmjopen-2016-014698.
29. Di Napoli A, Rossi A, Baralla F, Ventura M, Gatta R, Perez M et al. Self-perceived workplace discrimination and mental health among immigrant workers in Italy: a cross-sectional study. *BMC Psychiatry*. 2021;21(1):85. doi:10.1186/s12888-021-03077-6.
30. Di Napoli A, Gatta R, Rossi A, Perez M, Costanzo G, Mirisola C et al. [Perceived discrimination at work for being an immigrant: a study on self-perceived mental health status among immigrants in Italy]. *Epidemiol Prev*. 2017;41(3–4 suppl 1):33–40 (in Italian). doi:10.19191/EP17.3-4S1.P033.063.
31. Carey RN, El-Zaemey S, Daly A, Fritschi L, Glass DC, Reid A. Are there ethnic disparities in exposure to workplace hazards among New Zealand migrants to Australia? *Asia Pac J Public Health*. 2021;33(8):870–9. doi:10.1177/10105395211007648.
32. Al-Surimi K, Al Omar M, Alahmary K, Salam M. Prevalence of workplace bullying and its associated factors at a multi-regional Saudi Arabian hospital: a cross-sectional study. *Risk Manag Healthc Policy*. 2020;13:1905–14. doi:10.2147/RMHP.S265127.
33. Basok T, Bélanger D, Rivas E. Reproducing deportability: migrant agricultural workers in south-western Ontario. *J Ethn Migr Stud*. 2014;40(9):1394–413. doi:10.1080/1369183X.2013.849566.
34. Holmes SM. An ethnographic study of the social context of migrant health in the United States. *PLOS Med*. 2006;3(10):e448. doi:10.1371/journal.pmed.0030448.
35. Kammogne CL, Marchand A. Ethnicité et statut d'immigrant: quelle association avec le travail et les symptômes dépressifs? *Rev Epidemiol Sante Publique*. 2021;69(3):145–53. doi:10.1016/j.respe.2021.01.009.
36. Rauf M. Socio-economic and legal issues and challenges of foreign migrant worker in Maldives: a case study of construction industry in male. *J Leg Stud Res*. 2019;5(5):188–209 (<https://thelawbrigade.com/wp-content/uploads/2019/10/Mohammad-Rauf.pdf>, accessed 29 March 2020).
37. Asia-Pacific migration report 2020: assessing implementation of the global compact for migration. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific; 2020 (<https://www.unescap.org/resources/asia-pacific-migration-report-2020>, accessed 5 April 2022).
38. Women migrant workers in the Asean economic community. New York: United Nations Entity for Gender Equality and the Empowerment of Women (UN Women); 2017 (<https://asiapacific.unwomen.org/en/digital-library/publications/2017/06/women-migration-workers-in-asean>, accessed 29 March 2022).
39. Gosselin A, Daly A, El Zaemey S, Fritschi L, Glass D, Perez ER et al. Does exposure to workplace hazards cluster by occupational or sociodemographic characteristics? An analysis of foreign-born workers in Australia. *Am J Ind Med*. 2020;63(9):803–16. doi:10.1002/ajim.23146.
40. Leiva Gomez S, Agüero MM, Fornes AC. Condiciones laborales de migrantes bolivianas que realizan trabajo de cuidado en Iquique [Labor conditions of Bolivian migrants who provide care work in Iquique]. *Si Somos Am*. 2017;17(1):11–37 (in Spanish). doi:10.4067/S0719-09482017000100011.
41. Joshi M. Occupational hazards among migrant workers: impact on their fertility and mental health. *Occup Env Med*. 2019;76(1):A99. doi:10.1136/OEM-2019-EPI.273.
42. Obali Odolla J. The other side of "economic migration": psychosocial issues affecting young people returning to Ethiopia. *Intervention*. 2016;14(3):330–4 (https://www.interventionjournal.com/sites/default/files/The_other_side_of__economic_migration___.15.pdf, accessed 29 March 2022).

43. Valenti A, Persechino B, Rondinone BM, Fortuna G, Boccuni V, Iavicolo S. Risk perception among migrant agricultural workers. *Occup Environ Med.* 2018;75(suppl 2):A477. doi:10.1136/oemed-2018-ICOHabstracts.1358.
44. Bailey R. Health care management in Australia's and New Zealand's seasonal worker schemes. Canberra: Department of Pacific Affairs (ANU); 2020 (DPA Working Paper 2020/2; <https://apo.org.au/node/302960>, accessed 29 March 2022).
45. Linardelli MF. [Among the farm, the factory, and home: productive and reproductive work of female migrant farmworkers in Mendoza (Argentina) and its impact in the health-disease process.] *Salud Colect.* 2018;14(4):757–77 (in Spanish). doi:10.18294/sc.2018.1395.
46. McClure HH, Josh Snodgrass J, Martinez CR, Squires EC, Jiménez RA, Isiordia LE et al. Stress, place, and allostatic load among Mexican immigrant farmworkers in Oregon. *J Immigr Minor Health.* 2015;17(5):1518–25. doi:10.1007/s10903-014-0066-z.
47. Desarrollo y salud en Costa Rica: elementos para su análisis [Development and health in Costa Rica: elements for analysis]. Organización Panamericana de la Salud Ministerio de Salud Organización Panamericana de la Salud, Facultad Latinoamericana de Ciencias Sociales. – Organización Panamericana de la Salud (<https://www.acnur.org/fileadmin/Documentos/Publicaciones/2008/6307.pdf>, accessed 24 June 2022).
48. Gálvez M del CA, Gordillo G del CA, Solana EE, Gálvez M del CA, Gordillo G del CA, Solana EE. Prácticas de alimentación y salud entre trabajadores agrícolas migrantes en Miguel Alemán, Sonora, México [Nutrition and health practices among migrant farm workers in Miguel Aleman, Sonora, Mexico]. *Poblac Salud Mesoamérica.* 2019;17(1):201–24 (in Spanish). doi:10.15517/psm.v17i1.37822.
49. Lee J-Y, Cho S. Prohibition on changing workplaces and fatal occupational injuries among Chinese migrant workers in South Korea. *Int J Environ Res Public Health.* 2019;16(18):3333. doi:10.3390/ijerph16183333.
50. de Gruchy T. Responding to the health needs of migrant farm workers in South Africa: opportunities and challenges for sustainable community-based responses. *Health Soc Care Community.* 2020;28(1):60–8. doi:10.1111/hsc.12840.
51. de Gruchy T, Vearey J. "Left behind": why implementing migration-aware responses to HIV for migrant farm workers is a priority for South Africa. *Afr J AIDS Res.* 2020;19(1):57–68. doi:10.2989/16085906.2019.1698624.
52. Work permits and employment of Syrian refugees in Jordan: towards formalising the work of Syrian refugees. Geneva: International Labour Organization; 2017 (http://www.ilo.org/beirut/publications/WCMS_559151/lang-en/index.htm, accessed 29 March 2022).
53. Chan JS, Chia DW, Hao Y, Lian SW, Chua MT, Ong ME. Health-seeking behaviour of foreign workers in Singapore: insights from emergency department visits. *Ann Acad Med Singapore.* 2021;50(4):315–24. doi:10.47102/annals-acadmedsg.2020484.
54. Roche J, Vos AG, Lalla-Edward ST, Venter WDF, Scheuermaier K. Relationship between sleep disorders, HIV status and cardiovascular risk: cross-sectional study of long-haul truck drivers from southern Africa. *Occup Environ Med.* 2021;oemed-2020-107208. doi:10.1136/oemed-2020-107208.
55. Michalopoulos LM, Ncube N, Simona SJ, Kansankala B, Sinkala E, Raidoo J. A qualitative study of migrant-related stressors, psychosocial outcomes and HIV risk behaviour among truck drivers in Zambia. *Afr J AIDS Res.* 2016;15(3):219–26. doi:10.2989/16085906.2016.1179653.
56. Ehrlich R, Montgomery A, Akugizibwe P, Gonsalves G. Public health implications of changing patterns of recruitment into the South African mining industry, 1973–2012: a database analysis. *BMC Public Health.* 2017;18(1):93. doi:10.1186/s12889-017-4640-x.
57. Baltazar CS, DeLima YV, Ricardo H, Botão C, Langa DC, da Costa P et al. HIV prevalence and TB in migrant miners communities of origin in Gaza Province, Mozambique: the need for increasing awareness and knowledge. *PLOS One.* 2020;15(4):e0231303. doi:10.1371/journal.pone.0231303.
58. Falcao J, Zerbe A, Lahuerta M, Baggaley R, Ahoua L, DiMattei P et al. Factors associated with use of short-term pre-exposure prophylaxis for HIV among female partners of migrant miners in Mozambique. *AIDS Patient Care STDS.* 2017;31(12):528–34. doi:10.1089/apc.2017.0179.
59. Smith J, Blom P. Those who don't return: improving efforts to address tuberculosis among former miners in southern Africa. *New Solut.* 2019;29(1):76–104. doi:10.1177/1048291119832082.
60. Kistnasamy B, Yassi A, Yu J, Spiegel SJ, Fourie A, Barker S et al. Tackling injustices of occupational lung disease acquired in South African mines: recent developments and ongoing challenges. *Global Health.* 2018;14(1):60. doi:10.1186/s12992-018-0376-3.
61. Green O, Ayalon L. Violations of workers' rights and exposure to work-related abuse of live-in migrant and live-out local home care workers - a preliminary study: implications for health policy and practice. *Isr J Health Policy Res.* 2018;7(1):32. doi:10.1186/s13584-018-0224-1.
62. Labao HC, Faller EM, Bacayo MFD. "Aches and pains" of Filipino migrant workers in Malaysia: a profile of work-related musculoskeletal disorders. *Ann Glob Health.* 2018;84(3):474–80. doi:10.29024/aogh.2331.
63. Mendoza NB, Mordeno IG, Latkin CA, Hall BJ. Evidence of the paradoxical effect of social network support: a study among Filipino domestic workers in China. *Psychiatry Res.* 2017;255:263–71. doi:10.1016/j.psychres.2017.05.037.

64. Hall BJ, Pangan CAC, Chan EWW, Huang RL. The effect of discrimination on depression and anxiety symptoms and the buffering role of social capital among female domestic workers in Macao, China. *Psychiatry Res.* 2019;271:200–7. doi:10.1016/j.psychres.2018.11.050.
65. Women on the move: migration, care work and health. Geneva: World Health Organization; 2017 (<https://apps.who.int/iris/handle/10665/259463>, accessed 21 April 2022).
66. Rhead RD, Chui Z, Bakolis I, Gazard B, Harwood H, MacCrimmon S. Impact of workplace discrimination and harassment among National Health Service staff working in London trusts: results from the TIDES study. *BJPsych Open.* 2020;7(1):e(10). doi:10.1192/bjo.2020.137.
67. Collection and integration of data on refugee and migrant health in the WHO European Region (2020). Copenhagen: WHO Regional Office for Europe; 2020 (<https://apps.who.int/iris/handle/10665/337694>, accessed 29 March 2022).
68. Ennis CA, Walton-Roberts M. Labour market regulation as global social policy: the case of nursing labour markets in Oman. *Glob Soc Policy.* 2018;18(2):169–88. doi:10.1177/1468018117737990.
69. Walker R. Selling sex, mothering and "keeping well" in the city: reflecting on the everyday experiences of cross-border migrant women who sell sex in Johannesburg. *Urban Forum.* 2016;28:59–73. doi:10.1007/s12132-016-9284-x.
70. Mutola S, Pemunta NV, Ngo NV, Otang OI, Tabenyang T-CJ. The plight of female Cameroonian migrant sex workers in N'Djamena, Chad: a case of intersectionality. *J Immigr Minor Health.* 2022;24(2):430–6. doi:10.1007/s10903-021-01216-5.
71. Rosenberg JS, Bakomeza D. Let's talk about sex work in humanitarian settings: piloting a rights-based approach to working with refugee women selling sex in Kampala. *Reprod Health Matters.* 2017;25(51):95–102. doi:10.1080/09688080.2017.1405674.
72. Sex workers: monitoring implementation of the Dublin Declaration on Partnership to Fight HIV/AIDS in Europe and Central Asia: 2014 progress report. Stockholm: European Centre for Disease Prevention and Control; 2015 (<https://op.europa.eu/en/publication-detail/-/publication/f2695f12-8450-11e5-b8b7-01aa75ed71a1/language-en>, accessed 29 March 2022).
73. Goldenberg SM, Krüsi A, Zhang E, Chettiar J, Shannon K. Structural determinants of health among im/migrants in the indoor sex industry: experiences of workers and managers/owners in Metropolitan Vancouver. *PLOS One.* 2017;12(1):e0170642. doi:10.1371/journal.pone.0170642.
74. Hongjaisee S, Khamduang W, Sripan P, Choyrum S, Thepbundit V, Ngo-Giang-Huong N. Prevalence and factors associated with hepatitis B and D virus infections among migrant sex workers in Chiangmai, Thailand: a cross-sectional study in 2019. *Int J Infect Dis.* 2020;100:247–54. doi:10.1016/j.ijid.2020.09.004.
75. Selvey LA, Lobo RC, McCausland KL, Donovan B, Bates J, Hallett J. Challenges facing Asian sex workers in Western Australia: implications for health promotion and support services. *Front Public Health.* 2018;6:171. doi:10.3389/fpubh.2018.00171.
76. Ruiz-Burga E. Implications of migration patterns and sex work on access to health services and key health outcomes: a qualitative study on male migrant sex workers in London. *Int J Sex Health.* 2021;33(3):237–47. doi:10.1080/19317611.2021.1902893.
77. Febres-Cordero B, Brouwer KC, Rocha-Jimenez T, Fernandez-Casanueva C, Morales-Miranda S, Goldenberg SM. Influence of peer support on HIV/STI prevention and safety amongst international migrant sex workers: a qualitative study at the Mexico–Guatemala border. *PLOS One.* 2018;13(1):e0190787. doi:10.1371/journal.pone.0190787.
78. Challenges for the collection of reliable OSH data - fact sheet. Geneva: International Labour Organization; 2017 (https://www.ilo.org/global/topics/safety-and-health-at-work/events-training/events-meetings/world-day-for-safety/WCMS_546702/lang--en/index.htm, accessed 29 March 2022).
79. ILOSTAT Data. Geneva: International Labour Organization; 2022 (<https://ilostat.ilo.org/data/>, accessed 4 May 2022).
80. Orrenius PM, Zavodny M. Do immigrants work in riskier jobs? *Demography.* 2009;46(3):535–51. doi:10.1353/dem.0.0064.
81. Orellana C, Kreshpaj B, Burstrom B, Davis L, Frumento P, Hemmingsson T et al. Organisational factors and under-reporting of occupational injuries in Sweden: a population-based study using capture–recapture methodology. *Occup Environ Med.* 2021;78(10):745–52. doi:10.1136/oemed-2020-107257.
82. World social protection report 2020–22. Geneva: International Labour Organization; 2021 (<https://www.ilo.org/global/research/global-reports/world-social-security-report/2020-22/lang--en/index.htm>, accessed 29 March 2022).
83. Salminen S. Are immigrants at increased risk of occupational injury? A literature review. *Ergon Open J.* 2011;4:125–30. doi:10.2174/1875934301104010125.
84. Coderre-Proulx M, Campbell C, Mandé I. International migrant workers in the mining sector. Geneva: International Labour Organization; 2016 (http://www.ilo.int/wcmsp5/groups/public/---ed_protect/---protrav/---migrant/documents/publication/wcms_537175.pdf, accessed 29 March 2022).
85. Bulat P, Protić J, Hirose K. Occupational safety and health in the construction sector in Serbia. Geneva: International Labour Organization; 2019 (http://www.ilo.org/budapest/what-we-do/publications/WCMS_671139/lang--en/index.htm, accessed 29 March 2022).

86. Buckley M, Zendel A, Biggar J, Frederiksen L, Wells J. Migrant work and employment in the construction sector. Geneva: International Labour Organization; 2016 (https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---migrant/documents/publication/wcms_538487.pdf, accessed 29 March 2022).
87. Vallejos QM, Quandt SA, Grzywacz JG, Isom S, Chen H, Galván L et al. Migrant farmworkers' housing conditions across an agricultural season in North Carolina. *Am J Ind Med*. 2011;54(7):533–44. doi:10.1002/ajim.20945.
88. Family planning - a global handbook for providers. Geneva: World Health Organization; 2018 (<https://apps.who.int/iris/handle/10665/260156/>, accessed 29 March 2022).
89. Ivanova O, Rai M, Mlahagwa W, Tumuhairwe J, Bakuli A, Nyakato VN et al. A cross-sectional mixed-methods study of sexual and reproductive health knowledge, experiences and access to services among refugee adolescent girls in the Nakivale refugee settlement, Uganda. *Reprod Health*. 2019;16(1):35. doi:10.1186/s12978-019-0698-5.
90. Ahmed R, Farnaz N, Aktar B, Hassan R, Shafique SB, Ray P et al. Situation analysis for delivering integrated comprehensive sexual and reproductive health services in humanitarian crisis condition for Rohingya refugees in Cox's Bazar, Bangladesh: protocol for a mixed-method study. *BMJ Open*. 2019;9(7):e028340. doi:10.1136/bmjopen-2018-028340.
91. Botfield JR, Zwi AB, Rutherford A, Newman CE. Learning about sex and relationships among migrant and refugee young people in Sydney, Australia: "I never got the talk about the birds and the bees". *Sex Educ*. 2018;18(6):705–20. doi:10.1080/14681811.2018.1464905.
92. Matsumoto M, Wimer G, Sethi A. Health needs of refugees: port of arrival versus permanent camp settings. *East Mediterr Health J*. 2019;25(5):306–14. doi:10.26719/emhj.18.041.
93. Tapales A, Douglas-Hall A, Whitehead H. The sexual and reproductive health of foreign-born women in the United States. *Contraception*. 2018;98(1):47–51. doi:10.1016/j.contraception.2018.02.003.
94. Schmidt N, Quack K, Fagnoli V, Epiney M, Irion O. Exploring barriers to reproductive health services for migrant women in Geneva using a community-based approach. *Geburtshilfe Frauenheilkd*. 2017;77(02):182–91. doi:10.1055/s-0037-1598145.
95. Logie CH, Okumu M, Mwima S, Kyambadde P, Hakiza R, Kibathi IP et al. Sexually transmitted infection testing awareness, uptake and diagnosis among urban refugee and displaced youth living in informal settlements in Kampala, Uganda: a cross-sectional study. *BMJ Sex Reprod Health*. 2020;46(3):192–9. doi:10.1136/bmjsex-2019-200392.
96. Logie CH, Okumu M, Mwima SP, Kyambadde P, Hakiza R, Kibathi IP et al. Exploring associations between adolescent sexual and reproductive health stigma and HIV testing awareness and uptake among urban refugee and displaced youth in Kampala, Uganda. *Sex Reprod Health Matters*. 2019;27(3):86–106. doi:10.1080/26410397.2019.1695380.
97. Dune T, Mapedzahama V. Culture clash: Shona (Zimbabwean) migrant women's experiences with communicating about sexual health and wellbeing across cultures and generations. *Afr J Reprod Health*. 2017;21(1):18–29. doi:10.29063/ajrh2017/v21i1.1.
98. Kågesten AE, Zimmerman L, Robinson C, Lee C, Bawoke T, Osman S et al. Transitions into puberty and access to sexual and reproductive health information in two humanitarian settings: a cross-sectional survey of very young adolescents from Somalia and Myanmar. *Confl Health*. 2017;11(suppl 1):24. doi:10.1186/s13031-017-0127-8.
99. Kannappan S, Shanmugam K. Peer educators as change leaders - effectiveness of peer education process in creating awareness on reproductive health among women workers in textile industry. *Indian J Community Med*. 2019;44(3):252–5. doi:10.4103/ijcm.IJCM_6_19.
100. Botfield J, Newman C, Zwi A. P4.51 Engaging young people from migrant and refugee backgrounds with sexual and reproductive health promotion and care in Sydney, Australia. *Sex Trans Inf*. 2017;93(2). doi:10.1136/sextrans-2017-053264.548.
101. Botfield JR, Newman CE, Zwi AB. Engaging refugee and migrant young people with sexual health care: does generation matter more than culture? *Sex Res Soc Policy*. 2018;15(4):398–408. doi:10.1007/s13178-018-0320-6.
102. Lee C, Aules Y, Sami S, Lar PK, Schlect J, Robinson C. Sexual and reproductive health needs and risks of very young adolescent refugees and migrants from Myanmar living in Thailand. *Confl Health*. 2017;11(suppl 1):30. doi:10.1186/s13031-017-0130-0.
103. Rogers C, Earnest J. Sexual and reproductive health communication among Sudanese and Eritrean women: an exploratory study from Brisbane, Australia. *Cult Health Sex*. 2015;17(2):223–36. doi:10.1080/13691058.2014.967302.
104. Ganle JK, Amoako D, Baatiema L, Ibrahim M. Risky sexual behaviour and contraceptive use in contexts of displacement: insights from a cross-sectional survey of female adolescent refugees in Ghana. *Int J Equity Health*. 2019;18(1):127. doi:10.1186/s12939-019-1031-1.
105. Gebrecherkos K, Gebremariam B, Gebeyehu A, Siyum H, Kahsay G, Abay M. Unmet need for modern contraception and associated factors among reproductive age group women in Eritrean refugee camps, Tigray, north Ethiopia: a cross-sectional study. *BMC Res Notes*. 2018;11(1):851. doi:10.1186/s13104-018-3956-7.

106. Inci MG, Kutschke N, Nasser S, Alavi S, Abels I, Kurmeyer C et al. Unmet family planning needs among female refugees and asylum seekers in Germany – is free access to family planning services enough? Results of a cross-sectional study. *Reprod Health*. 2020;17(1):115. doi:10.1186/s12978-020-00962-3.
107. Raben LAD, van den Muijsenbergh METC. Inequity in contraceptive care between refugees and other migrant women? A retrospective study in Dutch general practice. *Fam Pract*. 2018;35(4):468–74. doi:10.1093/fampra/cmz133.
108. Åkerman E, Larsson EC, Essén B, Westerling R. A missed opportunity? Lack of knowledge about sexual and reproductive health services among immigrant women in Sweden. *Sex Reprod Healthc*. 2019;19:64–70. doi:10.1016/j.srhc.2018.12.005.
109. Mamuk R, Şahin NH. Reproductive health issues of undocumented migrant women living in Istanbul. *Eur J Contracept Reprod Health Care*. 2021;26(3):202–8. doi:10.1080/13625187.2020.1843618.
110. Action plan for sexual and reproductive health: towards achieving the 2030 Agenda for Sustainable Development in Europe - leaving no one behind. Copenhagen: WHO Regional Office for Europe; 2016 (https://www.euro.who.int/__data/assets/pdf_file/0003/322275/Action-plan-sexual-reproductive-health.pdf, accessed 29 March 2022).
111. Jones NA, Baird S, Kilburn A, Hamad BA, Banioweda J, Alabbadi K et al. Adolescent well-being in Jordan: exploring gendered capabilities, contexts and change strategies - a synthesis report on GAGE Jordan baseline findings. In: *Gender and Adolescence: Global Evidence*. London: Overseas Development Institute; 2019 (<https://reliefweb.int/report/jordan/adolescent-well-being-jordan-exploring-gendered-capabilities-contexts-and-change>, accessed 29 March 2019).
112. Jordan population and family health survey 2017–18. Amman: Department of Statistics, Government of Jordan; 2019 (<http://dosweb.dos.gov.jo/products/dhs2017-2018/>, accessed 29 March 2022).
113. At a glance: health access and utilization survey among non-camp refugees in Lebanon - November 2015. Geneva: Office of the United Nations High Commissioner for Refugees, Public Health; 2015 (<https://reliefweb.int/report/lebanon/glance-health-access-and-utilization-survey-among-non-camp-refugees-lebanon-november>, accessed 29 April 2022).
114. At a glance: health access and utilization survey among Syrian refugees in Lebanon - September 2016. Geneva: Office of the United Nations High Commissioner for Refugees, Public Health; 2016 (<https://reliefweb.int/report/lebanon/glance-health-access-and-utilization-survey-among-syrian-refugees-lebanon-september>, accessed 29 April 2022).
115. Health access and utilization survey among Syrian refugees in Lebanon - November 2017. Geneva: Office of the United Nations High Commissioner for Refugees, Public Health; 2017 (<https://reliefweb.int/report/lebanon/health-access-and-utilization-survey-among-syrian-refugees-lebanon-november-2017>, accessed 29 April 2022).
116. Health access and utilization survey among Syrian refugees in Lebanon - December 2018. Geneva: Office of the United Nations High Commissioner for Refugees, Public Health; 2018 (<https://reliefweb.int/report/lebanon/health-access-and-utilization-survey-among-syrian-refugees-lebanon-december-2018>, accessed 29 April 2022).
117. Health access and utilization survey among Syrian refugees in Lebanon - November 2019. Geneva: Office of the United Nations High Commissioner for Refugees, Public Health; 2019 (<https://reliefweb.int/report/lebanon/health-access-and-utilization-survey-among-syrian-refugees-lebanon-november-2019>, accessed 29 April 2022).
118. Health access and utilization survey among Syrian refugees in Lebanon - October 2020. Geneva: Office of the United Nations High Commissioner for Refugees, Public Health; 2020 (<https://reliefweb.int/report/lebanon/unhcr-health-access-and-utilization-survey-among-syrian-refugees-lebanon-october-2020>, accessed 29 April 2022).
119. Kanwal N, Muttappallymyalil J, Al-Sharbatti S, Ismail I. Contraceptive utilisation among mothers of reproductive age in Ajman, United Arab Emirates. *Sultan Qaboos Univ Med J*. 2017;17(1):e50–8. doi:10.18295/squmj.2016.17.01.010.
120. Tran TDH, Tuan DK, Anh ND, Le TKA, Bui TTH. Premarital sex, contraceptive use among unmarried women migrant workers in industrial parks in Vietnam, 2015. *Health Care Women Int*. 2018;39(4):377–88. doi:10.1080/07399332.2017.1412439.
121. Shah R, Kiriya J, Shibanuma A, Jimba M. Use of modern contraceptive methods and its association with QOL among Nepalese female migrants living in Japan. *PLOS One*. 2018;13(5):e0197243. doi:10.1371/journal.pone.0197243.
122. Ellawela Y, Nilaweera I, Holton S, Rowe H, Kirkman M, Jordan L et al. Contraceptive use and contraceptive health care needs among Sri Lankan migrants living in Australia: findings from the understanding fertility management in contemporary Australia survey. *Sex Reprod Healthc*. 2017;12:70–5. doi:10.1016/j.srhc.2017.03.003.
123. Dolan H, Li M, Bateson D, Thompson R, Tam CWM, Bonner C et al. "Every medicine is part poison": a qualitative inquiry into the perceptions and experiences of choosing contraceptive methods of migrant Chinese women living in Australia. *BMC Womens Health*. 2021;21(1):100. doi:10.1186/s12905-021-01226-3.

124. Inoue K, Kelly M, Bateson D, Rutherford A, Stewart M, Richters J. Contraceptive choices and sexual health of Japanese women living in Australia: a brief report from a qualitative study. *Aust Fam Physician*. 2016;45(7):523–7. PMID:27610438.
125. Metusela C, Ussher J, Perz J, Hawkey A, Morrow M, Narchal R et al. "In my culture, we don't know anything about that": sexual and reproductive health of migrant and refugee women. *Int J Behav Med*. 2017;24(6):836–45. doi:10.1007/s12529-017-9662-3.
126. Migración y salud en Costa Rica: elementos para su análisis [Migration and health in Costa Rica: elements for analysis]. San José: Ministerio de Salud, Costa Rica; 2003 (in Spanish; <https://www.acnur.org/fileadmin/Documentos/Publicaciones/2008/6307.pdf>, accessed 29 March 2022).
127. Cardozo Delgado S. Mujeres que migran: atención en salud sexual y reproductiva a migrantes afrocaribeñas en Uruguay [Women on the move: sexual and reproductive health care for Afro-Caribbean migrants in Uruguay]. *Encuentros Latinoamericanos (segunda época)*. 2018;2(2):49–85 (in Spanish; <https://ojs.fhce.edu.uy/index.php/enclat/article/view/124>, accessed 29 March 2022).
128. Sieverding M, Krafft C, Berri N, Keo C. Persistence and change in marriage practices among Syrian refugees in Jordan. *Stud Fam Plann*. 2020;51(3):225–49. doi:10.1111/sifp.12134.
129. Wanigaratne S, Wiedmeyer M-L, Brown HK, Guttman A, Urquia ML. Induced abortion according to immigrants' birthplace: a population-based cohort study. *Reprod Health*. 2020;17(1):143. doi:10.1186/s12978-020-00982-z.
130. Fetters T, Rubayet S, Sultana S, Nahar S, Tofigh S, Jones L et al. Navigating the crisis landscape: engaging the ministry of health and United Nations agencies to make abortion care available to Rohingya refugees. *Confl Health*. 2020;14(1):50. doi:10.1186/s13031-020-00298-6.
131. Fontanelli Sulekova L, Spaziante M, Vita S, Zuccalà P, Mazzocato V, Spagnolello O et al. The pregnancy outcomes among newly arrived asylum-seekers in Italy: implications of public health. *J Immigr Minor Health*. 2021;23(2):232–9. doi:10.1007/s10903-020-01126-y.
132. Jokela S, Lilja E, Kinnunen TI, Gissler M, Castaneda AE, Koponen P. Births and induced abortions among women of Russian, Somali and Kurdish origin, and the general population in Finland - comparison of self-reported and register data. *BMC Pregnancy Childbirth*. 2018;18(1):296. doi:10.1186/s12884-018-1931-x.
133. Loganathan T, Chan ZX, de Smalen AW, Pocock NS. Migrant women's access to sexual and reproductive health services in Malaysia: a qualitative study. *Int J Environ Res Public Health*. 2020;17(15):5376. doi:10.3390/ijerph17155376.
134. Tanabe M, Greer A, Leigh J, Modi P, Davis WW, Mhote PP et al. An exploration of gender-based violence in eastern Myanmar in the context of political transition: findings from a qualitative sexual and reproductive health assessment. *Sex Reprod Health Matters*. 2019;27(2):1665161. doi:10.1080/26410397.2019.1665161.
135. Obregón M. Extending the Latina Paradox: comparative findings of sexually transmitted infections among Mexican origin, black, and white birth-giving women. *Popul Rev*. 2019;58(1). doi:10.1353/prv.2019.0003.
136. Tangmunkongvorakul A, Musumari PM, Srithanaviboonchai K, Manoyos V, Techasrivichien T, Sugimoto SP et al. "When I first saw a condom, I was frightened": a qualitative study of sexual behavior, love and life of young cross-border migrants in urban Chiang Mai, Thailand. *PLOS One*. 2017;12(8):e0183255. doi:10.1371/journal.pone.0183255.
137. Bhatta MP, Johnson DC, Lama M, Maharjan B, Lhaki P, Shrestha S. Cervical cancer and human papillomavirus vaccine awareness among married Bhutanese refugee and Nepali women in eastern Nepal. *J Community Health*. 2020;45(3):516–25. doi:10.1007/s10900-019-00770-2.
138. Jirattikorn A, Tangmunkongvorakul A, Musumari PM, Ayuttacorn A, Srithanaviboonchai K, Banwell C et al. Sexual risk behaviours and HIV knowledge and beliefs of Shan migrants from Myanmar living with HIV in Chiang Mai, Thailand. *Int J Migr Health Soc Care*. 2020;16(4). doi:10.1108/IJMHS-09-2019-0080.
139. Morales A, Li Wing-Ching K, Acuña G. Migración y salud en zonas fronterizas: Nicaragua y Costa Rica [Migration and health in border areas: Nicaragua and Costa Rica]. United Nations Economic Commission for Latin America and the Caribbean; 2010 (in Spanish; <https://repositorio.cepal.org/handle/11362/7236>, accessed 29 March 2022).
140. Montiel Armas I, Canales Cerón AI, Vargas Becerra PN. Migración y salud en zonas fronterizas: Guatemala y México [Migration and health in border areas: Guatemala and Mexico]. United Nations Economic Commission for Latin America and the Caribbean; 2010 (in Spanish; <https://repositorio.cepal.org/handle/11362/7233>, accessed 29 March 2022).
141. Reques L, Aranda-Fernandez E, Rolland C, Grippon A, Fallet N, Reboul C et al. Episodes of violence suffered by migrants transiting through Libya: a cross-sectional study in "Médecins du Monde's" reception and healthcare centre in Seine-Saint-Denis, France. *Confl Health*. 2020;14(1):12. doi:10.1186/s13031-020-0256-3.
142. Parrado EA, Flippen CA, McQuiston C. Migration and relationship power among Mexican women. *Demography*. 2005;42(2):347–72. doi:10.1353/dem.2005.0016.

143. Vu A, Wirtz A, Pham K, Singh S, Rubenstein L, Glass N et al. Psychometric properties and reliability of the Assessment Screen to Identify Survivors Toolkit for Gender Based Violence (ASIST-GBV): results from humanitarian settings in Ethiopia and Colombia. *Confl Health*. 2016;10:1. doi:10.1186/s13031-016-0068-7.
144. Al-Modallal H. Effect of intimate partner violence on health of women of Palestinian origin. *Int Nurs Rev*. 2016;63(2):259–66. doi:10.1111/inr.12239.
145. Delkosh M, Merghati Khoei E, Ardalan A, Rahimi Foroushani A, Gharavi MB. Prevalence of intimate partner violence and reproductive health outcomes among Afghan refugee women in Iran. *Health Care Women Int*. 2019;40(2):213–37. doi:10.1080/07399332.2018.1529766.
146. Bartels SA, Michael S, Bunting A. Child marriage among Syrian refugees in Lebanon: at the gendered intersection of poverty, immigration, and safety. *J Immigr Refug Stud*. 2021;19(4):472–87. doi:10.1080/15562948.2020.1839619.
147. Al-Natour A, Al-Ostaz SM, Morris EJ. Marital violence during war conflict: the lived experience of Syrian refugee women. *J Transcult Nurs*. 2019;30(1):32–8. doi:10.1177/1043659618783842.
148. Hirsch JS, Muñoz-Laboy M, Nyhus CM, Yount KM, Bauermeister JA. They "miss more than anything their normal life back home": masculinity and extramarital sex among Mexican migrants in Atlanta. *Perspect Sex Reprod Health*. 2009;41(1):23–32. doi:10.1111/j.1931-2393.2009.4112309.x.
149. Granada I, Ortiz P, Muñoz F, Jiménez AS, Pombo C, Tamayo L. La migración desde una perspectiva de género: ideas operativas para su integración en proyectos de desarrollo [Migration from a gender perspective: operational ideas for mainstreaming in development projects]. Washington (DC): Inter-American Development Bank; 2021 (in Spanish; <https://publications.iadb.org/publications/spanish/document/La-migracion-desde-una-perspectiva-de-genero-Ideas-operativas-para-su-integracion-en-proyectos-de-desarrollo.pdf>, accessed 29 March 2022).
150. Oliveira C, Keygnaert I, Oliveira Martins M do R, Dias S. Assessing reported cases of sexual and gender-based violence, causes and preventive strategies, in European asylum reception facilities. *Glob Health*. 2018;14(1):48. doi:10.1186/s12992-018-0365-6.
151. Keygnaert I, Guieu A. What the eye does not see: a critical interpretive synthesis of European Union policies addressing sexual violence in vulnerable migrants. *Reprod Health Matters*. 2015;23(46):45–55. doi:10.1016/j.rhm.2015.11.002.
152. Nisrane BL, Ossewaarde R, Need A. The exploitation narratives and coping strategies of Ethiopian women return migrants from the Arabian Gulf. *Gend Place Cult*. 2020;27(4):568–86. doi:10.1080/0966369X.2019.1611545.
153. Leyva-Flores R, Infante C, Gutierrez JP, Quintino-Perez F, Gómez-Saldivar M, Torres-Robles C. Migrants in transit through Mexico to the US: experiences with violence and related factors, 2009-2015. *PLOS One*. 2019;14(8):e0220775. doi:10.1371/journal.pone.0220775.
154. Baranowski KA, Wang E, D'Andrea MR, Singer EK. Experiences of gender-based violence in women asylum seekers from Honduras, El Salvador and Guatemala. *Torture*. 2019;29(3):46–58. doi:10.7146/torture.v29i3.111970.
155. Soria-Escalante H, Alday-Santiago A, Alday-Santiago E, Limón-Rodríguez N, Manzanares-Melendres P, Tena-Castro A. "We all get raped": sexual violence against Latin American women in migratory transit in Mexico. *Violence Against Women*. 2022;28(5):1259–81. doi:10.1177/10778012211013909.
156. Infante C, Leyva-Flores R, Gutierrez JP, Quintino-Perez F, Torres-Robles CA, Gomez-Zaldívar M. Rape, transactional sex and related factors among migrants in transit through Mexico to the USA. *Cult Health Sex*. 2020;22(10):1145–60. doi:10.1080/13691058.2019.1662088.
157. Lemus-Way MC, Johansson H. Strengths and resilience of migrant women in transit: an analysis of the narratives of Central American Women in irregular transit through Mexico towards the USA. *J Int Migr Integr*. 2020;21(3):745–63. doi:10.1007/s12134-019-00690-z.
158. Female refugees face physical assault, exploitation and sexual harassment on their journey through Europe. London: Amnesty International; 2016 (<https://www.amnesty.org/en/latest/news/2016/01/female-refugees-face-physical-assault-exploitation-and-sexual-harassment-on-their-journey-through-europe/>, accessed 29 March 2022).
159. Harrowing journeys: children and youth on the move across the Mediterranean Sea, at risk of trafficking and exploitation. New York: United Nations Children's Fund (UNICEF); 2017 (<https://publications.iom.int/books/harrowing-journeys-children-and-youth-move-across-mediterranean-sea-risk-trafficking-and>, accessed 29 March 2022).
160. Chynoweth SK, Buscher D, Martin S, Zwi AB. Characteristics and impacts of sexual violence against men and boys in conflict and displacement: a multicountry exploratory study. *J Interpers Violence*. 2020;088626052096713. doi:10.1177/0886260520967132.
161. Female genital mutilation (FGM) statistics. New York: United Nations Children's Fund (UNICEF); 2021 (<https://data.unicef.org/topic/child-protection/female-genital-mutilation/>, accessed 29 March 2022).
162. WHO guidelines on the management of health complications from female genital mutilation. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/206437>, accessed 29 March 2022).

163. Turkmani S, Homer CSE, Dawson A. Maternity care experiences and health needs of migrant women from female genital mutilation-practicing countries in high-income contexts: a systematic review and meta-synthesis. *Birth*. 2019;46(1):3–14. doi:10.1111/birt.12367.
164. Rouzi AA, Berg RC, Alamoudi R, Alzaban F, Sehlo M. Survey on female genital mutilation/cutting in Jeddah, Saudi Arabia. *BMJ Open*. 2019;9(5):e024684. doi:10.1136/bmjopen-2018-024684.
165. Johansen REB. Virility, pleasure and female genital mutilation/cutting. A qualitative study of perceptions and experiences of medicalized defibulation among Somali and Sudanese migrants in Norway. *Reprod Health*. 2017;14(1):25. doi:10.1186/s12978-017-0287-4.
166. Wahlberg A, Johnsdotter S, Selling KE, Källestål C, Essén B. Baseline data from a planned RCT on attitudes to female genital cutting after migration: when are interventions justified? *BMJ Open*. 2017;7(8): e017506. doi:10.1136/bmjopen-2017-017506.
167. Tittle V, Bennett DL, Hajat S, Shishtawi A, Zeidan W, Abuzabaida F et al. Antenatal care among Palestine refugees in Jordan: factors associated with UNRWA attendance. *East Mediterr Health J*. 2019;25(2):98–103. doi:10.26719/emhj.18.017.
168. Children in the State of Palestine: child development data from the 2019/2020 multiple indicator cluster survey (MICS) New York: United Nations Children's Fund (UNICEF); 2021 (<https://www.unicef.org/sop/reports/children-state-palestine-0>, accessed 29 March 2022).
169. Gumede S, Black V, Naidoo N, Chersich MF. Attendance at antenatal clinics in inner-city Johannesburg, South Africa and its associations with birth outcomes: analysis of data from birth registers at three facilities. *BMC Public Health*. 2017;17(suppl 3):443. doi:10.1186/s12889-017-4347-z.
170. Rustad SA, Binningsbø HM, Gjerløw H, Mwesigye F, Odokonyero T, Østby G. Maternal health care among refugees and host communities in northern Uganda: access, quality, and discrimination. *Front Glob Womens Health*. 2021;2:626002. doi:10.3389/fgwh.2021.626002.
171. Di Napoli A, Rossi A, Battisti L, Cacciani L, Caranci N, Cernigliaro A et al. [Evaluating health care of the immigrant population in Italy through indicators of a national monitoring system]. *Epidemiol Prev*. 2020;44(5-6 suppl 1):85–93 (in Italian). doi:10.19191/EP20.5-6.S1.P085.077.
172. Ludwig A, Miani C, Breckenkamp J, Sauzet O, Borde T, Doyle I-M et al. Are social status and migration background associated with utilization of non-medical antenatal care? Analyses from two German studies. *Matern Child Health J*. 2020;24(7):943–52. doi:10.1007/s10995-020-02937-z.
173. Fakoya I, Álvarez-del Arco D, Copas AJ, Teixeira B, Block K, Gennotte A-F et al. Factors associated with access to HIV testing and primary care among migrants living in Europe: cross-sectional survey. *JMIR Public Health Surveill*. 2017;3(4):e84. doi:10.2196/publichealth.7741.
174. Kentoffio K, Berkowitz SA, Atlas SJ, Oo SA, Percac-Lima S. Use of maternal health services: comparing refugee, immigrant and US-born populations. *Matern Child Health J*. 2016;20(12):2494–501. doi:10.1007/s10995-016-2072-3.
175. Mahon A, Merry L, Lu O, Gagnon AJ. Postpartum pain in the community among migrant and non-migrant women in Canada. *J Immigr Minor Health*. 2017;19(2):407–14. doi:10.1007/s10903-016-0364-8.
176. Wanigaratne S, Shakya Y, Gagnon AJ, Cole DC, Rashid M, Blake J et al. Refugee maternal and perinatal health in Ontario, Canada: a retrospective population-based study. *BMJ Open*. 2018;8(4):e018979. doi:10.1136/bmjopen-2017-018979.
177. Sharifi M, Amiri-Farahani L, Haghani S, Hasanpoor-Azghady SB. Predicting factors of postnatal information needs of Afghan migrants women in Iran. *Nurs Pract Today*; 2019;6(4). doi:10.18502/npt.v6i4.1945.
178. Alnuaimi K, Kassab M, Ali R, Mohammad K, Shattnawi K. Pregnancy outcomes among Syrian refugee and Jordanian women: a comparative study. *Int Nurs Rev*. 2017;64(4):584–92. doi:10.1111/inr.12382.
179. Abdulrahim S, Rafei RE, Beydoun Z, Hayek GYE, Nakad P, Yunis K. A test of the epidemiological paradox in a context of forced migration: low birthweight among Syrian newborns in Lebanon. *Int J Epidemiol*. 2019;48(1):275–86. doi:10.1093/ije/dyy200.
180. Pedersen GS, Grøntved A, Mortensen LH, Andersen A-MN, Rich-Edwards J. Maternal mortality among migrants in western Europe: a meta-analysis. *Matern Child Health J*. 2014;18(7):1628–38. doi:10.1007/s10995-013-1403-x.
181. Merry L, Semenic S, Gyorkos TW, Fraser W, Gagnon AJ. Predictors of unplanned cesareans among low-risk migrant women from low-and middle-income countries living in Montreal, Canada. *Birth*. 2016;43(3):209–19. doi:10.1111/birt.12234.
182. Tsai H-J, Surkan PJ, Stella MY, Caruso D, Hong X, Bartell TR et al. Differential effects of stress and African ancestry on preterm birth and related traits among US born and immigrant Black mothers. *Medicine (Baltimore)*. 2017;96(5):e5899. doi:10.1097/MD.0000000000005899.
183. Bahamondes L, Laporte M, Margatho D, de Amorim HSF, Brasil C, Charles CM et al. Maternal health among Venezuelan women migrants at the border of Brazil. *BMC Public Health*. 2020;20(1):1771. doi:10.1186/s12889-020-09912-x.

184. Verschuuren AEH, Postma IR, Riksen ZM, Nott RL, Feijen-de Jong EI, Stekelenburg J. Pregnancy outcomes in asylum seekers in the north of the Netherlands: a retrospective documentary analysis. *BMC Pregnancy Childbirth*. 2020;20(1):320. doi:10.1186/s12884-020-02985-x.
185. Yelland J, Mensah F, Riggs E, McDonald E, Szwarc J, Dawson W et al. Evaluation of systems reform in public hospitals, Victoria, Australia, to improve access to antenatal care for women of refugee background: an interrupted time series design. Spiegel P, editor. *PLOS Med*. 2020;17(7):e1003089. doi:10.1371/journal.pmed.1003089.
186. Mozooni M, Pennell CE, Preen DB. Healthcare factors associated with the risk of antepartum and intrapartum stillbirth in migrants in Western Australia (2005–2013): a retrospective cohort study. *PLOS Med*. 2020;17(3):e1003061. doi:10.1371/journal.pmed.1003061.
187. Grundy S, Lee P, Small K, Ahmed F. Maternal region of origin and small for gestational age: a cross-sectional analysis of Victorian perinatal data. *BMC Pregnancy Childbirth*. 2021;21(1):409. doi:10.1186/s12884-021-03864-9.
188. Lee SJ, Hashmi AH, Min AM, Gilder ME, Tun NW, Wah LL et al. Short maternal stature and gestational weight gain among refugee and migrant women birthing appropriate for gestational age term newborns: a retrospective cohort on the Myanmar-Thailand border, 2004–2016. *BMJ Glob Health*. 2021;6(2):e004325. doi:10.1136/bmjgh-2020-004325.
189. A "SMART" core [website]. Geneva: Office of the United Nations High Commissioner for Refugees; 2021 (<https://sens.unhcr.org/about-us/a-smart-core/>, accessed 29 March 2022).
190. AbuKishk N, Turki Y, Saleh S, Albaik S, Hababeh M, El-Khatib Z et al. Anaemia prevalence in children newly registered at UNRWA schools: a cross-sectional study. *BMJ Open*. 2020;10(9):e034705. doi:10.1136/bmjopen-2019-034705.
191. Asmar MK, Zablith CG, Daou R, Yéretzian JS, Daoud H, Rady A. Prevalence of anemia and associated factors in women of childbearing age in rural Lebanon. *J Public Health*. 2018;26(3):39–49. doi:10.1007/s10389-017-0853-9.
192. Elmardi KA, Adam I, Malik EM, Abdelrahim TA, Elhag MS, Ibrahim AA et al. Prevalence and determinants of anaemia in women of reproductive age in Sudan: analysis of a cross-sectional household survey. *BMC Public Health*. 2020;20(1):1125. doi:10.1186/s12889-020-09252-w.
193. Jemal Y, Haidar J, Makau WK. The magnitude and determinants of anaemia among refugee preschool children from the Kebribeyah refugee camp, Somali region, Ethiopia. *South Afr J Clin Nutr*. 2017;30(1):1–6. doi:10.1080/16070658.2017.1237446.
194. Orbatu D, Alaygut D, Siviş ZO, Pakdemirli A, Malbora B. Evaluation of nutritional anemia in Middle Eastern migrant and refugee children. *Turk J Pediatr Dis*. 2020;14(3):244–8. doi:10.12956/tchd.718636.
195. Jablonka A, Wetzke M, Sogkas G, Dopfer C, Schmidt RE, Behrens GMN et al. Prevalence and types of anemia in a large refugee cohort in western Europe in 2015. *J Immigr Minor Health*. 2018;20(6):1332–8. doi:10.1007/s10903-018-0725-6.
196. Joseph J, Brodribb W, Liamputtong P. "Fitting-in Australia" as nurturers: meta-synthesis on infant feeding experiences among immigrant women. *Women Birth*. 2019;32(6):533–42. doi:10.1016/j.wombi.2018.12.002.
197. Primary health care in the Western Pacific Region: looking back and future directions. Manila: WHO Regional Office for the Western Pacific; 2018 (<https://apps.who.int/iris/handle/10665/276248>, accessed 29 March 2022).
198. Azad F, Rifat MA, Manir MZ, Biva NA. Breastfeeding support through wet nursing during nutritional emergency: a cross sectional study from Rohingya refugee camps in Bangladesh. *PLOS One*. 2019;14(10):e0222980. doi:10.1371/journal.pone.0222980.
199. Lenters L, Wazny K, Bhutta ZA. Management of severe and moderate acute malnutrition in children. In: Black RE, Laxminarayan R, Temmerman M, Walker N, editors. *Reproductive, maternal, newborn, and child health: disease control priorities, third edition (volume 2)*. Washington (DC): The International Bank for Reconstruction and Development, The World Bank; 2016 (<https://www.ncbi.nlm.nih.gov/books/NBK361900/>, accessed 29 March 2022).
200. Hodinott J, Dorosh P, Filipksi M, Rosenbach G, Tiburcio E. Food transfers, electronic food vouchers and child nutritional status among Rohingya children living in Bangladesh. *PLOS One*. 2020;15(4):e0230457. doi:10.1371/journal.pone.0230457.
201. Rahman MT. Rohingya crisis in Bangladesh and health sector challenges. *Anwer Khan Mod Med Coll J*. 2018;9(1):3–4. doi:10.3329/akmmcj.v9i1.35814.
202. Islam K, Kundu C, Rahman MF, Alam N, Mohsin SS, Mohsin FM et al. Nutritional status of under-5 children of forcibly migrated people living in Ukhia, Cox Bazar, Bangladesh. *J Nutr Health Sci*. 2018;5(4):409–13 (<http://www.annepublishers.com/articles/JNH/5409-Nutritional-Status-of-Under-5-Children-of-Forcibly-Migrated-People-Living-in-Ukhia-Cox-Bazar-Bangladesh.pdf>, accessed 29 March 2022).
203. Vakos A, Khalil N, Kumar A, Menezes L, Ahson M. Assessment of growth in pediatric Syrian refugee populations in Jordan. *Avicenna J Med*. 2021;11(4):167–71. doi:10.1055/s-0041-1736544.
204. Lwin SWW, Geater AF. Ethnic groups and father's job influencing nutritional status of children (0–30 months) from Myanmar migrant community in southern Thailand. *J Racial Ethn Health Disparities*. 2019;6(5):944–52. doi:10.1007/s40615-019-00595-8.

205. Baauw A, Holthe JK van, Slattery B, Heymans M, Chinapaw M, van Goudoever H. Health needs of refugee children identified on arrival in reception countries: a systematic review and meta-analysis. *BMJ Paediatr Open*. 2019;3(1):e000516. doi:10.1136/bmjpo-2019-000516.
206. Aakre I, Lilleengen AM, Lerseth Aarsand M, Strand TA, Barikmo I, Henjum S. Infant feeding practices in the Saharawi refugee camps Algeria, a cross-sectional study among children from birth to six months of age. *Int Breastfeed J*. 2017;12:8. doi:10.1186/s13006-016-0098-1.
207. Altare C, Delbiso TD, Guha-Sapir D. Child wasting in emergency pockets: a meta-analysis of small-scale surveys from Ethiopia. *Int J Environ Res Public Health*. 2016;13(2):178. doi:10.3390/ijerph13020178.
208. Grammatikopoulou MG, Theodoridis X, Poulimeneas D, Maraki MI, Gkiouras K, Tirodimos I et al. Malnutrition surveillance among refugee children living in reception centres in Greece: a pilot study. *Int Health*. 2019;11(1):30–5. doi:10.1093/inthealth/ihy053.
209. Hashmi AH, Nyein PB, Pilaseng K, Paw MK, Darakamon MC, Min AM et al. Feeding practices and risk factors for chronic infant undernutrition among refugees and migrants along the Thailand-Myanmar border: a mixed-methods study. *BMC Public Health*. 2019;19(1):1586. doi:10.1186/s12889-019-7825-7.
210. Kim SY, Choi SW. Double burden of malnutrition and obesity in children and adolescents from North Korean refugee families. *PLOS One*. 2020;15(11):e0241963. doi:10.1371/journal.pone.0241963.
211. Massad S, Deckelbaum RJ, Gebre-Medhin M, Holleran S, Dary O, Obeidi M et al. Double burden of undernutrition and obesity in Palestinian schoolchildren: a cross-sectional study. *Food Nutr Bull*. 2016;37(2):144–52. doi:10.1177/0379572116637720.
212. Chelwa NM, Likwa RN, Banda J. Under-five mortality among displaced populations in Meheba refugee camp, Zambia, 2008–2014. *Arch Public Health*. 2016;74:49. doi:10.1186/s13690-016-0161-9.
213. Health of refugee and migrant children: technical guidance. Copenhagen: WHO Regional Office for Europe; 2018 (<https://apps.who.int/iris/handle/10665/342285>, accessed 29 March 2022).
214. Garcia-Tizon Larroca S, Arevalo-Serrano J, Duran Vila A, Pintado Recarte MP, Cueto Hernandez I, Solis Pierna A et al. Human development index (HDI) of the maternal country of origin as a predictor of perinatal outcomes - a longitudinal study conducted in Spain. *BMC Pregnancy Childbirth*. 2017;17(1):314. doi:10.1186/s12884-017-1515-1.
215. Marrone R, Baglio G, Brusolino G, Costanzo G, Cavani A, Mirisola C. Prevalence of latent tuberculosis infection, hepatitis B, hepatitis C, and syphilis among newly arrived unaccompanied minors living in reception centers in Rome. *Int J Infect Dis*. 2020;101:126–30. doi:10.1016/j.ijid.2020.09.020.
216. Oliván-Gonzalvo G. Health status and infectious diseases in male unaccompanied immigrant minors from Africa in Spain. *Enferm Infecc Microbiol Clin (Engl Ed)*. 2021;39(7):340–4. doi:10.1016/j.eimce.2020.05.018.
217. Muñoz-Pino N, Vives-Cases C, Agudelo-Suárez AA, Ronda-Pérez E. Comparing oral health services use in the Spanish and immigrant working population. *J Immigr Minor Health*. 2018;20(4):809–15. doi:10.1007/s10903-017-0630-4.
218. Makan R, Gara M, Awwad MA, Hassona Y. The oral health status of Syrian refugee children in Jordan: an exploratory study. *Spec Care Dentist*. 2019;39(3):306–9. doi:10.1111/scd.12377.
219. Smadi L, Azab R, Khlaifat F, Rodan R, Abdalmohdi A, Maata R et al. Prevalence and severity of dental caries in school students aged 6-12 years in Mafraq governorate: northeast of Jordan. *J Oral Health Oral Epidemiol*. 2017;6(1):40–7 (https://johoe.kmu.ac.ir/article_84868.html, accessed 29 March 2022).
220. Khadri FA, Gopinath VK, Hector MP, Davenport ES. Evaluating the risk factors that link obesity and dental caries in 11-17-year-old school going children in the United Arab Emirates. *Eur J Dent*. 2018;12(2):217–24. doi:10.4103/ejd.ejd_29_18.
221. Ferrazzano GF, Cantile T, Sangianantoni G, Ingenito A, Rengo S, Alcidi B et al. Oral health status and unmet restorative treatment needs (UTN) in disadvantaged migrant and not migrant children in Italy. *Eur J Paediatr Dent*. 2019;20(1):10–14. doi:10.23804/ejpd.2019.20.01.02.
222. Child migration [website]. New York: United Nations Children's Fund (UNICEF); 2021 (<https://data.unicef.org/topic/child-migration-and-displacement/migration/>, accessed 29 March 2022).
223. Child displacement [website]. New York: United Nations Children's Fund (UNICEF); 2021 (<https://data.unicef.org/topic/child-migration-and-displacement/displacement/>, accessed 29 March 2022).
224. Health and children on the move. New York: United Nations Children's Fund; 2022 (Thematic-brief; <https://www.unicef.org/media/119926/file/Health-and-Children-on-the-Move-Thematic-Brief-2022%20.pdf>, accessed 20 June 2022).
225. van Hook J, Landale N, Hillemeier M. Is the United States bad for children's health? Risk and resilience among young children of immigrants. Washington (DC): Migration Policy Institute; 2013 (<https://www.migrationpolicy.org/research/united-states-bad-children%E2%80%99s-health-risk-and-resilience-among-young-children-immigrants>, accessed 29 March 2022).

226. von Werthern M, Grigorakis G, Vizard E. The mental health and wellbeing of unaccompanied refugee minors (URMs). *Child Abuse Negl.* 2019;98:104146. doi:10.1016/j.chiabu.2019.104146.
227. Mental health and psychosocial support (MHPSS) for families at the US-Mexico border. New York: United Nations Children's Fund (UNICEF); 2020 ([https://www.unicef.org/media/89621/file/MHPSS%20Field%20Guide%20\(English\).pdf](https://www.unicef.org/media/89621/file/MHPSS%20Field%20Guide%20(English).pdf), accessed 29 March 2022).
228. Ahmad A, Sofi MA, Sundelin-Wahlsten V, von Koring AL. Posttraumatic stress disorder in children after the military operation "Anfal" in Iraqi Kurdistan. *Eur Child Adolesc Psychiatry.* 2000;9(4):235–43. doi:10.1007/s007870070026.
229. Lebano A, Hamed S, Bradby H, Gil-Salmerón A, Durá-Ferrandis E, Garcés-Ferrer J et al. Migrants' and refugees' health status and healthcare in Europe: a scoping literature review. *BMC Public Health.* 2020;20(1):1039. doi:10.1186/s12889-020-08749-8.
230. Health of refugees and migrants: regional situation analysis, practices, experiences, lessons learned and ways forward. New Delhi: WHO Regional Office for South-East Asia; 2018 (https://www.who.int/docs/default-source/documents/publications/health-of-refugees-and-migrants-searo-2018.pdf?sfvrsn=b7c1ad1f_1, accessed 29 March 2022).
231. COVID-19 has led to dramatic reduction in essential services and protection for migrant and displaced children in countries around the world. New York: United Nations Children's Fund (UNICEF); 2020 (<https://www.unicef.org/press-releases/covid-19-has-led-dramatic-reduction-essential-services-and-protection-migrant-and>, accessed 29 March 2022).
232. Doocy S, Lyles E, Hanquart B, Woodman M; Lebanon Health Access Survey (LHAS) Study Team. Prevalence, care-seeking, and health service utilization for non-communicable diseases among Syrian refugees and host communities in Lebanon. *Confl Health.* 2016;10:21. doi:10.1186/s13031-016-0088-3.
233. Bilal PI, Chan CKY, Somerset SM. Depression mediates association between perceived ethnic discrimination and elevated blood glucose levels among sub-Saharan African migrants in Australia. *J Immigr Minor Health.* 2021;23(2):199–206. doi:10.1007/s10903-020-01131-1.
234. Nagamatsu Y, Barroga E, Sakyo Y, Igarashi Y, Hirano O Y. Risks and perception of non-communicable diseases and health promotion behavior of middle-aged female immigrants in Japan: a qualitative exploratory study. *BMC Womens Health.* 2020;20(1):88. doi:10.1186/s12905-020-00955-1.
235. Jin K, Gullick J, Neubeck L, Koo F, Ding D. Acculturation is associated with higher prevalence of cardiovascular disease risk-factors among Chinese immigrants in Australia: evidence from a large population-based cohort. *Eur J Prev Cardiol.* 2017;24(18):2000–8. doi:10.1177/2047487317736828.
236. Reuven Y, Dreier J, Shvartzman P. The prevalence of diabetes, hypertension and obesity among immigrants from East Africa and the former Soviet Union: a retrospective comparative 30-year cohort study. *Cardiovasc Diabetol.* 2016;15:74. doi:10.1186/s12933-016-0392-7.
237. Lê-Scherban F, Albrecht SS, Bertoni A, Kandula N, Mehta N, Diez Roux AV. Immigrant status and cardiovascular risk over time: results from the Multi-Ethnic Study of Atherosclerosis. *Ann Epidemiol.* 2016;26(6):429–435.e1. doi:10.1016/j.annepidem.2016.04.008.
238. Ververs M, Muriithi JW, Burton A, Burton JW, Lawi AO. Scurvy outbreak among South Sudanese adolescents and young men — Kakuma Refugee Camp, Kenya, 2017–2018. *MMWR Morb Mortal Wkly Rep.* 2019;68(3):72–5. doi:10.15585/mmwr.mm6803a4.
239. Style S, Tondeur M, Grijalva-Eternod C, Pringle J, Kassim I, Wilkinson C et al. Assessment of the effectiveness of a small quantity lipid-based nutrient supplement on reducing anaemia and stunting in refugee populations in the Horn of Africa: secondary data analysis. *PLOS One.* 2017;12(6):e0177556. doi:10.1371/journal.pone.0177556.
240. Shi HY, Levy AN, Trivedi HD, Chan FKL, Ng SC, Ananthakrishnan AN. Ethnicity influences phenotype and outcomes in inflammatory bowel disease: a systematic review and meta-analysis of population-based studies. *Clin Gastroenterol Hepatol.* 2018;16(2):190–197.e11. doi:10.1016/j.cgh.2017.05.047.
241. Benchimol EI, Manuel DG, Mojaverian N, Mack DR, Nguyen GC, To T et al. Health services utilization, specialist care, and time to diagnosis with inflammatory bowel disease in immigrants to Ontario, Canada: a population-based cohort study. *Inflamm Bowel Dis.* 2016;22(10):2482–90. doi:10.1097/MIB.0000000000000905.
242. Carroll MW, Hamilton Z, Gill H, Simkin J, Smyth M, Espinosa V et al. Pediatric inflammatory bowel disease among South Asians living in British Columbia, Canada: a distinct clinical phenotype. *Inflamm Bowel Dis.* 2016;22(2):387–96. doi:10.1097/MIB.0000000000000651.
243. Van Biesen W, Vanholder R, Hernandez T, Drewniak D, Luyckx V. Caring for migrants and refugees with end-stage kidney disease in Europe. *Am J Kidney Dis.* 2018;71(5):701–9. doi:10.1053/j.ajkd.2017.10.015.
244. Wändell P, Carlsson AC, Li X, Gasevic D, Ärnlöv J, Sundquist J et al. End-stage kidney diseases in immigrant groups: a nationwide cohort study in Sweden. *Am J Nephrol.* 2019;49(3):186–92. doi:10.1159/000497063.
245. Cappuccio FP, Modesti PA, Parati G, editors. Ethnic diversities, hypertension and global cardiovascular risk: updates in hypertension and cardiovascular protection. Cham: Springer International Publishing; 2018.

246. Modesti PA, Reboldi G, Cappuccio FP, Agyemang C, Remuzzi G, Rapi S et al. Panethnic differences in blood pressure in Europe: a systematic review and meta-analysis. *PLOS One*. 2016;11(1):e0147601. doi:10.1371/journal.pone.0147601.
247. George J, Mathur R, Shah AD, Pujades-Rodriguez M, Denaxas S, Smeeth L et al. Ethnicity and the first diagnosis of a wide range of cardiovascular diseases: associations in a linked electronic health record cohort of 1 million patients. *PLOS One*. 2017;12(6):e0178945. doi:10.1371/journal.pone.0178945.
248. Fedeli U, Avossa F, Ferroni E, Schievano E, Bilato C, Modesti PA et al. Diverging patterns of cardiovascular diseases across immigrant groups in northern Italy. *Int J Cardiol*. 2018;254:362–7. doi:10.1016/j.ijcard.2017.12.014.
249. Fedeli U, Cestari L, Ferroni E, Avossa F, Saugo M, Modesti PA. Ethnic inequalities in acute myocardial infarction hospitalisation rates among young and middle-aged adults in northern Italy: high risk for South Asians. *Intern Emerg Med*. 2018;13(2):177–82. doi:10.1007/s11739-017-1631-y.
250. Fedeli U, Pigato M, Avossa F, Ferroni E, Nardetto L, Giometto B et al. Large variations in stroke hospitalization rates across immigrant groups in Italy. *J Neurol*. 2016;263(3):449–54. doi:10.1007/s00415-015-7995-x.
251. Fang J, Yuan K, Gindi RM, Ward BW, Ayala C, Loustalot F. Association of birthplace and coronary heart disease and stroke among US adults: National Health Interview Survey, 2006 to 2014. *J Am Heart Assoc*. 2018;7(7):e008153. doi:10.1161/JAHA.117.008153.
252. dos Santos Pereira P, Valeriano Alves S, Sales Moreira de Souza T. Relatório informativo sobre a população migrante internacional e a rede de saúde do Estado de Goiás [Report on the international migrant population and the health network of the State of Goiás]. Goiânia: Secretaria Estadual de Saúde de Goiás; 2020 (in Portuguese; <https://www.saude.go.gov.br/files/boletins/informativos/populacao-migrante/RelatorioPopMigranteInternacionalGERPOP.pdf>, accessed 30 March 2022).
253. Health services inequalities affecting the Venezuelan migrant and refugee population in Colombia. Bogotá: Profamilia; Washington (DC): United States Agency for International Development (USAID); 2020 (<https://profamilia.org.co/wp-content/uploads/2020/06/Health-services-inequalities-affecting-the-Venezuelan-migrant-and-refugee-population-in-Colombia-how-to-improve-the-local-response-to-the-humanitarian-emergency.pdf>, accessed 30 March 2022).
254. Collins DRJ, Jobanputra K, Frost T, Muhammed S, Ward A, Shafei AA et al. Cardiovascular disease risk and prevention amongst Syrian refugees: mixed methods study of Médecins Sans Frontières programme in Jordan. *Confl Health*. 2017;11:14. doi:10.1186/s13031-017-0115-z.
255. Mansour Z, Said R, Dbaibo H, Mrad P, Torossian L, Rady A et al. Non-communicable diseases in Lebanon: results from World Health Organization STEPS survey 2017. *Public Health*. 2020;187:120–6. doi:10.1016/j.puhe.2020.08.014.
256. Cheung MC, Earle CC, Fischer HD, Camacho X, Liu N, Saskin R et al. Impact of immigration status on cancer outcomes in Ontario, Canada. *J Oncol Pract*. 2017;13(7):e602–12. doi:10.1200/JOP.2016.019497.
257. Oyarte M, Delgado I, Pedrero V, Agar L, Cabieses B. Hospitalizaciones por cáncer en migrantes internacionales y población local en Chile [Cancer admissions in international migrants and the local population in Chile]. *Rev Saude Publica*. 2018;52:36 (in Spanish). doi:10.11606/S1518-8787.2018052000222.
258. Schlumbrecht M, Cerbon D, Castillo M, Jordan S, Butler R, Pinto A et al. Race and ethnicity influence survival outcomes in women of Caribbean nativity with epithelial ovarian cancer. *Front Oncol*. 2020;10:880. doi:10.3389/fonc.2020.00880.
259. Aldridge RW, Nellums LB, Bartlett S, Barr AL, Patel P, Burns R et al. Global patterns of mortality in international migrants: a systematic review and meta-analysis. *Lancet*. 2018;392(10164):2553–66. doi:10.1016/S0140-6736(18)32781-8.
260. Nisar M, Kolbe-Alexander TL, Burton NW, Khan A. A longitudinal assessment of risk factors and chronic diseases among immigrant and non-immigrant adults in Australia. *Int J Environ Res Public Health*. 2021;18(16):8621. doi:10.3390/ijerph18168621.
261. Si S, Peters S, Reid A. Variations in mesothelioma mortality rates among migrants to Australia and Australian-born. *Ethn Health*. 2018;23(5):480–7. doi:10.1080/13557858.2017.1280138.
262. Thøgersen H, Møller B, Åsli LM, Bhargava S, Kvåle R, Fjellbirkeland L et al. Waiting times and treatment following cancer diagnosis: comparison between immigrants and the Norwegian host population. *Acta Oncol*. 2020;59(4):376–83. doi:10.1080/0284186X.2019.1711167.
263. Campari C, Fedato C, Iossa A, Petrelli A, Zorzi M, Anghinoni E et al. Cervical cancer screening in immigrant women in Italy: a survey on participation, cytology and histology results. *Eur J Cancer Prev*. 2016;25(4):321–8. doi:10.1097/CEJ.000000000000173.
264. Spiegel PB, Cheaib JG, Aziz SA, Abraham O, Woodman M, Khalifa A et al. Cancer in Syrian refugees in Jordan and Lebanon between 2015 and 2017. *Lancet Oncol*. 2020;21(5):e280–91. doi:10.1016/S1470-2045(20)30160-1.
265. Spiegel P, Khalifa A, Mateen FJ. Cancer in refugees in Jordan and Syria between 2009 and 2012: challenges and the way forward in humanitarian emergencies. *Lancet Oncol*. 2014;15(7):e290–7. doi:10.1016/S1470-2045(14)70067-1.

266. Adoch W, Garimoi CO, Scott SE, Okeny GG, Moodley J, Komakech H et al. Knowledge of cervical cancer risk factors and symptoms among women in a refugee settlement: a cross-sectional study in northern Uganda. *Confl Health*. 2020;14(1):85. doi:10.1186/s13031-020-00328-3.
267. Lieber M, Afzal O, Shaia K, Mandelberger A, Preez CD, Beddoe AM. Cervical cancer screening in HIV-positive farmers in South Africa: mixed-method assessment. *Ann Glob Health*. 2019;85(1):58. doi:10.5334/aogh.37.
268. Hailemariam G, Gebreyesus H, Wubayehu T, Gebregyorgis T, Gebrecherkos K, Teweldemedhin M et al. Magnitude and associated factors of VIA positive test results for cervical cancer screening among refugee women aged 25–49 years in North Ethiopia. *BMC Cancer*. 2020;20(1):858. doi:10.1186/s12885-020-07344-9.
269. Petrelli A, Rossi PG, Francovich L, Giordani B, Napoli AD, Zappa M et al. Geographical and socioeconomic differences in uptake of Pap test and mammography in Italy: results from the National Health Interview Survey. *BMJ Open*. 2018;8(9):e021653. doi:10.1136/bmjopen-2018-021653.
270. Bakkal Temi Y, Murat Sedef A, Gokcay S, Coskun H, Oskeroglu Kaplan S, Ozkul O et al. A study on basic demographic and disease characteristics of cancer-diagnosed Syrian refugees treated in the border city of Turkey, Sanliurfa; a hospital-based retrospective case series study. *J BUON*. 2017;22(6):1591–4. PMID:29332358.
271. Gallo F, Caprioglio A, Castagno R, Ronco G, Segnan N, Giordano L. Inequalities in cervical cancer screening utilisation and results: a comparison between Italian natives and immigrants from disadvantaged countries. *Health Policy*. 2017;121(10):1072–8. doi:10.1016/j.healthpol.2017.08.005.
272. Balcilar M. Health status survey of Syrian refugees in Turkey: non-communicable disease risk factor surveillance among Syrian refugees living in Turkey. Ankara: Disaster and Emergency Management (AFAD) and Ministry of Health; 2016 (https://hsgm.saglik.gov.tr/depo/birimler/kronik-hastaliklar-engelli-db/hastaliklar/kronik_havayolu/raporlar/HEALT_STATUS_SURVEY_of_SYRIAN_REFUGEES_in_TURKEY.pdf, accessed 30 March 2022).
273. Napolitano F, Gualdieri L, Santagati G, Angelillo IF. Knowledge and attitudes toward HPV infection and vaccination among immigrants and refugees in Italy. *Vaccine*. 2018;36(49):7536–41. doi:10.1016/j.vaccine.2018.10.050.
274. McComb E, Ramsden V, Olatunbosun O, Williams-Roberts H. Knowledge, attitudes and barriers to human papillomavirus (HPV) vaccine uptake among an immigrant and refugee catch-up group in a western Canadian province. *J Immigr Minor Health*. 2018;20(6):1424–8. doi:10.1007/s10903-018-0709-6.
275. Wilson LA, Quan AML, Bota AB, Mithani SS, Paradis M, Jardine C et al. Newcomer knowledge, attitudes, and beliefs about human papillomavirus (HPV) vaccination. *BMC Fam Pract*. 2021;22(1):17. doi:10.1186/s12875-020-01360-1.
276. Ghebrendrias S, Pfeil S, Crouthamel B, Chalmiers M, Kully G, Mody S. An examination of misconceptions and their impact on cervical cancer prevention practices among sub-Saharan African and Middle Eastern refugees. *Health Equity*. 2021;5(1):382–9. doi:10.1089/heap.2020.0125.
277. Riza E, Karakosta A, Tsiampalis T, Lazarou D, Karachaliou A, Ntelis S et al. Knowledge, attitudes and perceptions about cervical cancer risk, prevention and human papilloma virus (HPV) in vulnerable women in Greece. *Int J Environ Res Public Health*. 2020;17(18):E6892. doi:10.3390/ijerph17186892.
278. Gebre H, Ghamli S, Jackson F, Chavan B, Kingori C. Knowledge, perception and utilization of cervical cancer screening and human papillomavirus (HPV) vaccination among immigrants and refugees in Central Ohio. *Columbia Univ J Glob Health*. 2021;11(1). doi:10.52214/cujgh.v11i1.7225.
279. Dalla V, Panagiotopoulou E-K, Deltsidou A, Kalogeropoulou M, Kostagiolas P, Niakas D et al. Level of awareness regarding cervical cancer among female Syrian refugees in Greece. *J Cancer Educ*. Epub 2020 Sep 22. doi:10.1007/s13187-020-01873-4.
280. Netfa F, King C, Davies C, Rashid H, Tashani M, Booy R et al. Knowledge, attitudes, and perceptions of the Arabic-speaking community in Sydney, Australia, toward the human papillomavirus (HPV) vaccination program: a qualitative study. *Vaccines (Basel)*. 2021;9(9):940. doi:10.3390/vaccines9090940.
281. Allen EM, Lee HY, Pratt R, Vang H, Desai JR, Dube A et al. Facilitators and barriers of cervical cancer screening and human papilloma virus vaccination among Somali refugee women in the United States: a qualitative analysis. *J Transcult Nurs*. 2019;30(1):55–63. doi:10.1177/1043659618796909.
282. Vamos CA, Kline N, Vázquez-Otero C, Lockhart EA, Lake PW, Wells KJ et al. Stakeholders' perspectives on system-level barriers to and facilitators of HPV vaccination among Hispanic migrant farmworkers. *Ethn Health*. Epub 2021 Mar 18. doi:10.1080/13557858.2021.1887820.
283. Vamos CA, Vázquez-Otero C, Kline N, Lockhart EA, Wells KJ, Proctor S et al. Multi-level determinants to HPV vaccination among Hispanic farmworker families in Florida. *Ethn Health*. 2021;26(3):319–36. doi:10.1080/13557858.2018.1514454.
284. Kenny DX, Hsueh K, Walters RW, Coté JJ. Human papillomavirus vaccination and Pap smear rates among Burmese refugee girls in a healthcare system in Omaha, Nebraska. *J Community Health*. 2021;46(6):1170–6. doi:10.1007/s10900-021-01003-1.
285. Møller SP, Kristiansen M, Norredam M. Human papillomavirus immunization uptake among girls with a refugee background compared with Danish-born girls: a national register-based cohort study. *Eur J Cancer Prev*. 2018;27(1):42–5. doi:10.1097/CEJ.0000000000000274.

286. Morgan R, Cassidy M, DeGeus SWL, Tseng J, McAneny D, Sachs T. Presentation and survival of gastric cancer patients at an urban academic safety-net hospital. *J Gastrointest Surg.* 2019;23(2):239–46. doi:10.1007/s11605-018-3898-3.
287. Garcia S, Pruitt SL, Singal AG, Murphy CC. Colorectal cancer incidence among Hispanics and non-Hispanic Whites in the United States. *Cancer Causes Control.* 2018;29(11):1039–46. doi:10.1007/s10552-018-1077-1.
288. Ashhab AA, Rodin H, Powell J, Debes JD. Impact of immigration in presentation and outcomes of hepatocellular carcinoma in the USA. *Eur J Gastroenterol Hepatol.* 2019;31(1):24–8. doi:10.1097/MEG.0000000000001212.
289. Hypertension. In: Fact sheets. Geneva: World Health Organization; 2021 (<https://www.who.int/news-room/fact-sheets/detail/hypertension>, accessed 30 March 2022).
290. Agyemang C, Nyaaba G, Beune E, Meeks K, Owusu-Dabo E, Addo J et al. Variations in hypertension awareness, treatment, and control among Ghanaian migrants living in Amsterdam, Berlin, London, and nonmigrant Ghanaians living in rural and urban Ghana - the RODAM study. *J Hypertens.* 2018;36(1):169–77. doi:10.1097/HJH.0000000000001520.
291. Ratnayake R, Rawashdeh F, Abualrub R, Al-Ali N, Fawad M, Hani MB et al. Access to care and prevalence of hypertension and diabetes among Syrian refugees in northern Jordan. *JAMA Netw Open.* 2020;3(10):e2021678. doi:10.1001/jamanetworkopen.2020.21678.
292. Sulaiman N, Elbadawi S, Hussein A, Abusnana S, Madani A, Mairghani M et al. Prevalence of overweight and obesity in United Arab Emirates expatriates: the UAE National Diabetes and Lifestyle Study. *Diabetol Metab Syndr.* 2017;9:88. doi:10.1186/s13098-017-0287-0.
293. Al-Hashel JY, Ismail II, Ibrahim M, John JK, Husain F, Kamel WA et al. Demographics, clinical characteristics, and management of idiopathic intracranial hypertension in Kuwait: a single-center experience. *Front Neurol.* 2020;11:672. doi:10.3389/fneur.2020.00672.
294. Akhtar N, Salam A, Kamran S, Bourke P, Joseph S, Santos M et al. Ethnic variation in acute cerebrovascular disease: analysis from the Qatar stroke registry. *Eur Stroke J.* 2016;1(3):231–41. doi:10.1177/2396987316663776.
295. Boulle P, Sibourd-Baudry A, Ansbro É, Prieto Merino D, Saleh N, Zeidan RK et al. Cardiovascular disease among Syrian refugees: a descriptive study of patients in two Médecins Sans Frontières clinics in northern Lebanon. *Confl Health.* 2019;13(1):37. doi:10.1186/s13031-019-0217-x.
296. Shah SM, Loney T, Sheek-Hussein M, El Sadig M, Al Dhaheri S, El Barazi I et al. Hypertension prevalence, awareness, treatment, and control, in male South Asian immigrants in the United Arab Emirates: a cross-sectional study. *BMC Cardiovasc Disord.* 2015;15:30. doi:10.1186/s12872-015-0024-2.
297. Shahin W, Kennedy GA, Stupans I. A qualitative exploration of the impact of knowledge and perceptions about hypertension in medication adherence in Middle Eastern refugees and migrants. *Explor Res Clin Social Pharm.* 2021;3:100038.
298. Gallegos D, Do H, To QG, Vo B, Goris J, Alraman H. Differences in cardiometabolic risk markers among ethnic groups in Queensland, Australia. *Health Soc Care Community.* 2019;27(4):e449–58. doi:10.1111/hsc.12745.
299. Commodore-Mensah Y, Selvin E, Aboagye J, Turkson-Ocran R-A, Li X, Himmelfarb CD et al. Hypertension, overweight/obesity, and diabetes among immigrants in the United States: an analysis of the 2010–2016 National Health Interview Survey. *BMC Public Health.* 2018;18(1):773. doi:10.1186/s12889-018-5683-3.
300. Rehr M, Shoaib M, Ellithy S, Okour S, Ariti C, Ait-Bouziad I et al. Prevalence of non-communicable diseases and access to care among non-camp Syrian refugees in northern Jordan. *Confl Health.* 2018;12:33. doi:10.1186/s13031-018-0168-7.
301. Shah SM, Jaacks LM, Al-Maskari F, Al-Kaabi J, Aziz F, Soteriades E et al. Association between duration of residence and prevalence of type 2 diabetes among male South Asian expatriate workers in the United Arab Emirates: a cross-sectional study. *BMJ Open.* 2020;10(12):e040166. doi:10.1136/bmjopen-2020-040166.
302. Sulaiman N, Albadawi S, Abusnana S, Mairghani M, Hussein A, Al-Awadi F et al. High prevalence of diabetes among migrants in the United Arab Emirates using a cross-sectional survey. *Sci Rep.* 2018;8(1):6862. doi:10.1038/s41598-018-24312-3.
303. Motlhale M, Ncayiyana JR. Migration status and prevalence of diabetes and hypertension in Gauteng province, South Africa: effect modification by demographic and socioeconomic characteristics—a cross-sectional population-based study. *BMJ Open.* 2019;9(9):e027427. doi:10.1136/bmjopen-2018-027427.
304. Meeks KAC, Freitas-Da-Silva D, Adayemo A, Beune EJAJ, Modesti PA, Stronks K et al. Disparities in type 2 diabetes prevalence among ethnic minority groups resident in Europe: a systematic review and meta-analysis. *Intern Emerg Med.* 2016;11(3):327–40. doi:10.1007/s11739-015-1302-9.
305. Li LJ, Zhang J, Shub A, Aris I, Tan KH. Exploring abnormal glucose metabolism in pregnancy among Australian Chinese migrants. *BMJ Open Diabetes Res Care.* 2020;8(1):e000903. doi:10.1136/bmjdr-2019-000903.
306. Jirojwong S, Brownhill S, Dahlen HG, Johnson M, Schmieid V. Going up, going down: the experience, control and management of gestational diabetes mellitus among Southeast Asian migrant women living in urban Australia. *Health Promot J Austr.* 2017;28(2):123–31. doi:10.1071/HE15130.

307. Wan CS, Abell S, Aroni R, Nankervis A, Boyle J, Teede H. Ethnic differences in prevalence, risk factors, and perinatal outcomes of gestational diabetes mellitus: a comparison between immigrant ethnic Chinese women and Australian-born Caucasian women in Australia. *J Diabetes*. 2019;11(10):809–17. doi:10.1111/1753-0407.12909.
308. Pierola D, Rodriguez Chatruc M. Migrants in Latin America: disparities in health status and in access to healthcare. Rochester (NY): Social Science Research Network; 2021 (<https://papers.ssrn.com/abstract=3682760>, accessed 30 March 2022).
309. Wilson A, Renzaho A. Intergenerational differences in acculturation experiences, food beliefs and perceived health risks among refugees from the Horn of Africa in Melbourne, Australia. *Public Health Nutr*. 2015;18(1):176–88. doi:10.1017/S1368980013003467.
310. Alzubaidi H, McNarmara K, Kilmartin GM, Kilmartin JF, Marriott J. The relationships between illness and treatment perceptions with adherence to diabetes self-care: a comparison between Arabic-speaking migrants and Caucasian English-speaking patients. *Diabetes Res Clin Pract*. 2015;110(2):208–17. doi:10.1016/j.diabres.2015.08.006.
311. Eh K, McGill M, Wong J, Krass I. Cultural issues and other factors that affect self-management of type 2 diabetes mellitus (T2D) by Chinese immigrants in Australia. *Diabetes Res Clin Pract*. 2016;119:97–105. doi:10.1016/j.diabres.2016.07.006.
312. Fernández A, Quan J, Moffet H, Parker MM, Schillinger D, Karter AJ. Adherence to newly prescribed diabetes medications among insured Latino and White patients with diabetes. *JAMA Intern Med*. 2017;177(3):371–9. doi:10.1001/jamainternmed.2016.8653.
313. Baghikar S, Benitez A, Fernandez Piñeros P, Gao Y, Baig AA. Factors impacting adherence to diabetes medication among urban, low income Mexican-Americans with diabetes. *J Immigr Minor Health*. 2019;21(6):1334–41. doi:10.1007/s10903-019-00867-9.
314. Lyles BE, Chua S, Barham Y, Pfeiffer-Mundt K, Spiegel P, Burton A et al. Improving diabetes control for Syrian refugees in Jordan: a longitudinal cohort study comparing the effects of cash transfers and health education interventions. *Confl Health*. 2021;15(1):41. doi:10.1186/s13031-021-00380-7.
315. Elliott JA, Das D, Cavailler P, Schneider F, Shah M, Ravaud A et al. A cross-sectional assessment of diabetes self-management, education and support needs of Syrian refugee patients living with diabetes in Bekaa Valley Lebanon. *Confl Health*. 2018;12(1):40. doi:10.1186/s13031-018-0174-9.
316. Commercial determinants of health. In: Fact sheets. Geneva: World Health Organization; 2021 (<https://www.who.int/news-room/fact-sheets/detail/commercial-determinants-of-health>, accessed 21 April 2022).
317. Harris S, Dykxhoorn J, Hollander A-C, Dalman C, Kirkbride JB. Substance use disorders in refugee and migrant groups in Sweden: a nationwide cohort study of 1.2 million people. *PLOS Med*. 2019;16(11):e1002944. doi:10.1371/journal.pmed.1002944.
318. Damiri BR. The use of psychoactive substances in a conflict area in the West Bank: drug use risk factors and practices in Palestinian refugee camps. *Int J Ment Health Addict*. 2020;18(6):1507–20. doi:10.1007/s11469-019-00183-1.
319. Ali R, Loney T, Al-Houqani M, Blair I, Aziz F, Al Dhaheri S et al. Cigarette smoking and smokeless tobacco use among male south Asian migrants in the United Arab Emirates: a cross-sectional study. *BMC Public Health*. 2020;20(1):815. doi:10.1186/s12889-020-08942-9.
320. Widmann M, Apondi B, Musau A, Warsame AH, Isse M, Mutiso V et al. Comorbid psychopathology and everyday functioning in a brief intervention study to reduce khat use among Somalis living in Kenya: description of baseline multimorbidity, its effects of intervention and its moderation effects on substance use. *Soc Psychiatry Psychiatr Epidemiol*. 2017;52(11):1425–34. doi:10.1007/s00127-017-1368-y.
321. Chiumento A, Rutayisire T, Sarabwe E, Hasan MT, Kasujja R, Nabirinde R et al. Exploring the mental health and psychosocial problems of Congolese refugees living in refugee settings in Rwanda and Uganda: a rapid qualitative study. *Confl Health*. 2020;14(1):77. doi:10.1186/s13031-020-00323-8.
322. Amosu SM, Onifade PO, Adamson TA. Psychoactive substance use and general mental health among refugees in a Nigerian camp. *J Subst Use*. 2016;21(3):230–6. doi:10.3109/14659891.2013.820800.
323. Sharma V, Papaefstathiou S, Tewolde S, Amobi A, Deyessa N, Relyea B et al. Khat use and intimate partner violence in a refugee population: a qualitative study in Dollo Ado, Ethiopia. *BMC Public Health*. 2020;20(1):670. doi:10.1186/s12889-020-08837-9.
324. Shaw PM, Chandra V, Escobar GA, Robbins N, Rowe V, Macsata R. Controversies and evidence for cardiovascular disease in the diverse Hispanic population. *J Vasc Surg*. 2018;67(3):960–9. doi:10.1016/j.jvs.2017.06.111.
325. Qureshi SA, Straiton M, Gele AA. Associations of socio-demographic factors with adiposity among immigrants in Norway: a secondary data analysis. *BMC Public Health*. 2020;20(1):772. doi:10.1186/s12889-020-08918-9.
326. Damiri B, Abualsoud MS, Samara AM, Salameh SK. Metabolic syndrome among overweight and obese adults in Palestinian refugee camps. *Diabetol Metab Syndr*. 2018;10:34. doi:10.1186/s13098-018-0337-2.

327. Ross WL, Gallego-Pérez DF, Lartey A, Sandow A, Pérez-Escamilla R, Hromi-Fiedler A. Dietary patterns in Liberian refugees in Buduburam, Ghana. *Matern Child Nutr.* 2017;13(4):e12401. doi:10.1111/mcn.12401.
328. Aung TNN, Shirayama Y, Moolphate S, Lorga T, Yuasa M, Aung MN. Acculturation and its effects on health risk behaviors among Myanmar migrant workers: a cross-sectional survey in Chiang Mai, northern Thailand. *Int J Env Res Public Health.* 2020;17(14):5108. doi:10.3390/ijerph17145108.
329. El Masri A, Kolt GS, George ES. The perceptions, barriers and enablers to physical activity and minimising sedentary behaviour among Arab-Australian adults aged 35–64 years. *Health Promot J Aust.* 2021;32(2):312–21. doi:10.1002/hpja.345.
330. Babatunde-Sowole OO, Power T, Davidson P, Ballard C, Jackson D. Exploring the diet and lifestyle changes contributing to weight gain among Australian West African women following migration: a qualitative study. *Contemp Nurse.* 2018;54(2):150–9. doi:10.1080/10376178.2018.1459760.
331. Casali ME, Borsari L, Marchesi I, Borella P, Bargellini A. Lifestyle and food habits changes after migration: a focus on immigrant women in Modena (Italy). *Ann Ig.* 2015;27(5):748–59. doi:10.7416/ai.2015.2067.
332. Maquod F, Vacca E, Tommaseo-Ponzetta M. From Morocco to Italy: how women's bodies reflect their change of residence. *Coll Antropol.* 2016;40(1):9–15. PMID:27301231.
333. Lendorfer J, Etang-Ndip A, Hoogeveen J. Socio-economic impact of the crisis in northern Mali on displaced people. *J Refug Stud.* 2016;29:315–40. doi:10.1093/jrs/few011.
334. Morseth MS, Grewal NK, Kaasa IS, Hatloy A, Barikmo I, Henjum S. Dietary diversity is related to socioeconomic status among adult Saharawi refugees living in Algeria. *BMC Public Health.* 2017;17(1):621. doi:10.1186/s12889-017-4527-x.
335. Campostrini S, Carrozzi G, Severoni S, Masocco M, Salmaso S. Migrant health in Italy: a better health status difficult to maintain - country of origin and assimilation effects studied from the Italian risk factor surveillance data. *Popul Health Metr.* 2019;17(1):14. doi:10.1186/s12963-019-0194-8.
336. Stronks K, Kunst AE. The complex interrelationship between ethnic and socio-economic inequalities in health. *J Public Health (Oxf).* 2009;31(3):324–5. doi:10.1093/pubmed/fdp070.
337. Hamad R, Öztürk B, Foverskov E, Pedersen L, Sørensen HT, Bøtker HE et al. Association of neighborhood disadvantage with cardiovascular risk factors and events among refugees in Denmark. *JAMA Netw Open.* 2020;3(8):e2014196. doi:10.1001/jamanetworkopen.2020.14196.
338. Commodore-Mensah Y, Agyemang C, Aboagye JA, Echouffo-Tcheugui JB, Beune E, Smeeth L et al. Obesity and cardiovascular disease risk among Africans residing in Europe and Africa: the RODAM study. *Obes Res Clin Pract.* 2020;14(2):151–7. doi:10.1016/j.orcp.2020.01.007.
339. Carlsson AC, Wändell P, Riserus U, Årnlöv J, Borné Y, Engström G et al. Differences in anthropometric measures in immigrants and Swedish-born individuals: results from two community-based cohort studies. *Prev Med.* 2014;69:151–6. doi:10.1016/j.ypmed.2014.09.020.
340. Sproston K, Mindell J. Health survey for England 2004: the health of minority ethnic groups. London: National Centre for Social Research; 2006 (<https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/health-survey-for-england-2004-health-of-ethnic-minorities-headline-results>, accessed 23 June 2022).
341. Waist circumference and waist-hip ratio: report of a WHO expert consultation, Geneva, 8–11 December 2008. Geneva: World Health Organization; 2011 (<https://apps.who.int/iris/handle/10665/44583>, accessed 29 March 2022).
342. Amstutz D, Gonçalves D, Hudelson P, Stringhini S, Durieux-Paillard S, Rolet S. Nutritional status and obstacles to healthy eating among refugees in Geneva. *J Immigr Minor Health.* 2020;22(6):1126–34. doi:10.1007/s10903-020-01085-4.
343. Jeong H, Lee S-K, Kim S-G. Changes in body weight and food security of adult North Korean refugees living in South Korea. *Nutr Res Pract.* 2017;11(4):307–18. doi:10.4162/nrp.2017.11.4.307.
344. Childhood Obesity Surveillance Initiative (COSI): severe obesity among children aged 6–9 years. Copenhagen: WHO Regional Office for Europe; 2019 (<https://apps.who.int/iris/handle/10665/346474>, accessed 23 June 2022).
345. Esteban-Gonzalo L, Veiga OL, Gómez-Martínez S, Regidor E, Martínez D, Marcos A et al. Adherencia a las recomendaciones nutricionales entre adolescentes españoles e inmigrantes residentes en España; estudio AFINOS [Adherence to dietary recommendations among Spanish and immigrant adolescents living in Spain; the AFINOS study]. *Nutr Hosp.* 2013;28(6):1926–36. doi:10.3305/nh.2013.28.6.6836.
346. Moreira S, Gonçalves L. Overweight and obesity in children of immigrant versus native parents: exploring a local setting in Portugal. *Int J Environ Res Public Health.* 2020;17(21):7897. doi:10.3390/ijerph17217897.
347. Kobel S, Lämmle C, Wartha O, Kesztyüs D, Wirt T, Steinacker JM. Effects of a randomised controlled school-based health promotion intervention on obesity related behavioural outcomes of children with migration background. *J Immigr Minor Health.* 2017;19(2):254–62. doi:10.1007/s10903-016-0460-9.
348. Iguacel I, Fernández-Alvira JM, Ahrens W, Bammann K, Gwozdz W, Lissner L et al. Prospective associations between social vulnerabilities and children's weight status. Results from the IDEFICS study. *Int J Obes (Lond).* 2018;42(10):1691–703. doi:10.1038/s41366-018-0199-6.

349. Tsujimoto T, Kajio H, Sugiyama T. Obesity, diabetes, and length of time in the United States: analysis of National Health and Nutrition Examination Survey 1999 to 2012. *Medicine (Baltimore)*. 2016;95(35):e4578. doi:10.1097/MD.0000000000004578.
350. Zulfiqar T, Strazdins L, Dinh H, Banwell C, D'Este C. Drivers of overweight/obesity in 4-11 year old children of Australians and immigrants; evidence from growing up in Australia. *J Immigr Minor Health*. 2019;21(4):737–50. doi:10.1007/s10903-018-0841-3.
351. Lane G, Farag M, White J, Nisbet C, Vatanparast H. Chronic health disparities among refugee and immigrant children in Canada. *Appl Physiol Nutr Metab*. 2018;43(10):1043–58. doi:10.1139/apnm-2017-0407.
352. Programme for international student assessment (PISA): PISA 2018 database. Paris: Organisation for Economic Co-operation and Development; 2018 (<https://www.oecd.org/pisa/data/2018database/#d.en.516012>; accessed 5 May 2022).
353. Obesity. In: Health topics. Geneva: World Health Organization; 2022 (https://www.who.int/health-topics/obesity#tab=tab_1, accessed 5 May 2022).
354. Dawson-Hahn E, Pak-Gorstein S, Matheson J, Zhou C, Yun K, Scott K et al. Growth trajectories of refugee and nonrefugee children in the United States. *Pediatrics*. 2016;138(6):e20160953. doi:10.1542/peds.2016-0953.
355. Al-Thani M, Al-Thani A, Alyafei S, Al-Chetachi W, Khalifa SE, Ahmed A et al. The prevalence and characteristics of overweight and obesity among students in Qatar. *Public Health*. 2018;160:143–9. doi:10.1016/j.puhe.2018.03.020.
356. Garemo M, Elamin A, Gardner A. Weight status and food habits of preschool children in Abu Dhabi, United Arab Emirates: NOPLAS project. *Asia Pac J Clin Nutr*. 2018;27(6):1302–14. doi:10.6133/apjcn.201811_27(6).0018.
357. Charlson F, van Ommeren M, Flaxman A, Cornett J, Whiteford H, Saxena S. New WHO prevalence estimates of mental disorders in conflict settings: a systematic review and meta-analysis. *Lancet*. 2019;394(10194):240–8. doi:10.1016/S0140-6736(19)30934-1.
358. Ao T, Shetty S, Sivilli T, Blanton C, Ellis H, Geltman PL et al. Suicidal ideation and mental health of Bhutanese refugees in the United States. *J Immigr Minor Health*. 2016;18(4):828–35. doi:10.1007/s10903-015-0325-7.
359. Meyerhoff J, Rohan KJ, Fondacaro KM. Suicide and suicide-related behavior among Bhutanese refugees resettled in the United States. *Asian Am J Psychol*. 2018;9(4):270–83. doi:10.1037/aap0000125.
360. Kateri E, Kalaitzaki A, Karademas E. The role of self-esteem in the relationship between anxiety and depression of Albanian and Indian immigrants in Greece. *Psychiatriki*. 2021;32:23–33. doi:10.22365/jpsych.2021.002.
361. Lindheimer N, Karnouk C, Hahn E, Churbaji D, Schilz L, Rayes D et al. Exploring the representation of depressive symptoms and the influence of stigma in Arabic-speaking refugee outpatients. *Front Psychiatry*. 2020;11:579057. doi:10.3389/fpsy.2020.579057.
362. Markova V, Sandal GM, Pallesen S. Immigration, acculturation, and preferred help-seeking sources for depression: comparison of five ethnic groups. *BMC Health Serv Res*. 2020;20(1):648. doi:10.1186/s12913-020-05478-x.
363. Poole DN, Hedt-Gauthier B, Liao S, Raymond NA, Bärnighausen T. Major depressive disorder prevalence and risk factors among Syrian asylum seekers in Greece. *BMC Public Health*. 2018;18(1):908. doi:10.1186/s12889-018-5822-x.
364. Solmaz F, Karataş H, Kandemir H, Solmaz A. Depression, loneliness and factors influencing in Syrian refugee children. *Int J Clin Pract*. 2021;75(5):e14039. doi:10.1111/ijcp.14039.
365. Eiset AH, Loua AS, Kruse A, Norredam M. The health status of newly arrived asylum-seeking minors in Denmark: a nationwide register-based study. *Int J Public Health*. 2020;65(9):1763–72. doi:10.1007/s00038-020-01501-4.
366. Earausquin JT, Song E, Rhodes SD. Gender norms, discrimination, acculturation, and depressive symptoms among Latino men in a new settlement state. *Ethn Dis*. 2020;30(4):519–24. doi:10.18865/ed.30.4.519.
367. Kim I-H, Noh S. Racial/ethnic variations in the main and buffering effects of ethnic and nonethnic supports on depressive symptoms among five ethnic immigrant groups in Toronto. *Ethn Health*. 2016;21(3):215–32. doi:10.1080/13557858.2015.1061101.
368. Sangalang CC, Becerra D, Mitchell FM, Lechuga-Peña S, Lopez K, Kim I. Trauma, post-migration stress, and mental health: a comparative analysis of refugees and immigrants in the United States. *J Immigr Minor Health*. 2019;21(5):909–19. doi:10.1007/s10903-018-0826-2.
369. Thomas J, Humeidan M, Barrack C, Huffman KL. Mindfulness, stress reactivity, and depressive symptoms among "third culture kids" in the United Arab Emirates. *J Cross-Cult Psychol*. 2021;52(2):192–208. doi:10.1177/0022022120987620.
370. Stevenson K, Alameddine R, Rukbi G, Chahrouri M, Usta J, Saab B et al. High rates of maternal depression amongst Syrian refugees in Lebanon - a pilot study. *Sci Rep*. 2019;9(1):11849. doi:10.1038/s41598-019-48247-5.
371. Eastwood J, Wang A, Khanlari S, Montgomery A, Yang JYH. Psychosocial stratification of antenatal indicators to guide population-based programs in perinatal depression. *BMC Pregnancy Childbirth*. 2021;21(1):277. doi:10.1186/s12884-021-03722-8.

372. Meyer SR, Steinhaus M, Bangirana C, Onyango-Mangen P, Stark L. The influence of caregiver depression on adolescent mental health outcomes: findings from refugee settlements in Uganda. *BMC Psychiatry*. 2017;17(1):405. doi:10.1186/s12888-017-1566-x.
373. Sabry W, Mostafa N, Wahdan M. Screening for depression and anxiety symptoms among a sample of working Syrian refugees in Egypt. *Egypt J Community Med*. 2020;38(1):103–11. doi:10.21608/EJCM.2020.68625.
374. Blackmore R, Boyle JA, Fazel M, Ranasinha S, Gray KM, Fitzgerald G et al. The prevalence of mental illness in refugees and asylum seekers: a systematic review and meta-analysis. *PLOS Med*. 2020;17(9):e1003337. doi:10.1371/journal.pmed.1003337.
375. Henkelmann J-R, de Best S, Deckers C, Jensen K, Shahab M, Elzinga B et al. Anxiety, depression and post-traumatic stress disorder in refugees resettling in high-income countries: systematic review and meta-analysis. *BJPsych Open*. 2020;6(4):e68. doi:10.1192/bjo.2020.54.
376. Björkenstam E, Helgesson M, Norredam M, Sijbrandij M, de Montgomery CJ, Mittendorfer-Rutz E. Common mental disorders among young refugees in Sweden: the role of education and duration of residency. *J Affect Disord*. 2020;266:563–71. doi:10.1016/j.jad.2020.02.015.
377. Priebe Rocha L, Soares C, McGregor A, Chen S, Kaplan A, Rose RR et al. Understanding health priorities, behaviors, and service utilization among Brazilian immigrant women: implications for designing community-based interventions. *J Racial Ethn Health Disparities*. 2022;9(1):135–45. doi:10.1007/s40615-020-00936-y.
378. Im H, Swan LE, Warsame AH, Isse MM. Risk and protective factors for comorbidity of PTSD, depression, and anxiety among Somali refugees in Kenya. *Int J Soc Psychiatry*. 2022;68(10):134–46. doi:10.1177/0020764020978685.
379. Akinyemi OO, Owoaje ET, Cadmus EO. In their own words: mental health and quality of life of West African refugees in Nigeria. *J Int Migr Integr*. 2016;17(1):273–87. doi:10.1007/s12134-014-0409-6.
380. Labys CA, Dreyer C, Burns JK. At zero and turning in circles: refugee experiences and coping in Durban, South Africa. *Transcult Psychiatry*. 2017;54(5–6):696–714. doi:10.1177/1363461517705570.
381. Thela L, Tomita A, Maharaj V, Mhlongo M, Burns JK. Counting the cost of Afrophobia: post-migration adaptation and mental health challenges of African refugees in South Africa. *Transcult Psychiatry*. 2017;54(5–6):715–32. doi:10.1177/1363461517745472.
382. Alfaro-Velcamp T, McLaughlin RH. Rape without remedy: Congolese refugees in South Africa. *Cogent Med*. 2019;6(1):1697502. doi:10.1080/2331205X.2019.1697502.
383. Riley A, Varner A, Ventevogel P, Taimur Hasan MM, Welton-Mitchell C. Daily stressors, trauma exposure, and mental health among stateless Rohingya refugees in Bangladesh. *Transcult Psychiatry*. 2017;54(3):304–31. doi:10.1177/1363461517705571.
384. Riley A, Akther Y, Noor M, Ali R, Welton-Mitchell C. Systematic human rights violations, traumatic events, daily stressors and mental health of Rohingya refugees in Bangladesh. *Conf Health*. 2020;14:60. doi:10.1186/s13031-020-00306-9.
385. Khan S, Haque S. Trauma, mental health, and everyday functioning among Rohingya refugee people living in short- and long-term resettlements. *Soc Psychiatry Psychiatr Epidemiol*. 2021;56(3):497–512. doi:10.1007/s00127-020-01962-1.
386. Kesornsri S, Sitthimongkol Y, Punpuing S, Vongsirimas N, Hegadoren K. Mental health and related factors among migrants from Myanmar in Thailand. *J Popul Soc Stud*. 2019;27(2):124–38. doi:10.25133/JPSsv27n2.008.
387. Meyer SR, Decker MR, Tol WA, Abshir N, Mar AA, Robinson WC. Workplace and security stressors and mental health among migrant workers on the Thailand–Myanmar border. *Soc Psychiatry Psychiatr Epidemiol*. 2016;51(5):713–23. doi:10.1007/s00127-015-1162-7.
388. Poudel OP, Thapa B, Bhandary S. Pre-departure psychological distress and associated factors among migrant workers of Nepal. *Scientific Communication and Education*; 2020 (<http://biorxiv.org/lookup/doi/10.1101/2020.12.14.422661>, accessed 2 April 2022).
389. Regmi PR, Aryal N, van Teijlingen E, Simkhada P, Adhikary P. Nepali migrant workers and the need for pre-departure training on mental health: a qualitative study. *J Immigr Minor Health*. 2020;22(5):973–81. doi:10.1007/s10903-019-00960-z.
390. Anjara SG, Nellums LB, Bonetto C, Van Bortel T. Stress, health and quality of life of female migrant domestic workers in Singapore: a cross-sectional study. *BMC Womens Health*. 2017;17(1):98. doi:10.1186/s12905-017-0442-7.
391. Miller R, Ong KIC, Choi S, Shibamura A, Jimba M. Seeking connection: a mixed methods study of mental well-being and community volunteerism among international migrants in Japan. *BMC Public Health*. 2020;20(1):1272. doi:10.1186/s12889-020-09381-2.
392. Chen W, Hall BJ, Ling L, Renzaho AM. Pre-migration and post-migration factors associated with mental health in humanitarian migrants in Australia and the moderation effect of post-migration stressors: findings from the first wave data of the BNLA cohort study. *Lancet Psychiatry*. 2017;4(3):218–29. doi:10.1016/S2215-0366(17)30032-9.
393. Kessler RC, Aguilar-Gaxiola S, Alonso J, Benjet C, Bromet EJ, Cardoso G et al. Trauma and PTSD in the WHO World Mental Health Surveys. *Eur J Psychotraumatol*. 2017;8(suppl 5):1353383. doi:10.1080/20008198.2017.1353383.

394. Center for Substance Abuse Treatment (US). Trauma-informed care in behavioral health services. Rockville (MD): Substance Abuse and Mental Health Services Administration; 2014 (Treatment Improvement Protocol series no. 57; <https://www.ncbi.nlm.nih.gov/books/NBK207201/>, accessed 2 April 2022).
395. Al-Awaida W, Al-Ameer HJ, Al-Turk H, Al bawareed O, Khalil R, Al Deek A et al. Psychological effects of quarantine on Syrian refugees, compared to the Jordanian populations. *Int Migr*. 2022;60(1):219–27. doi:10.1111/imig.12847.
396. Bajbouj M, Panneck P, Winter SM, Ajami C, Alabdullah J, Burger MB et al. A central clearing clinic to provide mental health services for refugees in Germany. *Front Public Health*. 2021;9:635474. doi:10.3389/fpubh.2021.635474.
397. Georgiadou E, Morawa E, Erim Y. High manifestations of mental distress in Arabic asylum seekers accommodated in collective centers for refugees in Germany. *Int J Environ Res Public Health*. 2017;14(6):612. doi:10.3390/ijerph14060612.
398. Solberg Ø, Vaez M, Johnson-Singh CM, Saboonchi F. Asylum-seekers' psychosocial situation: a diathesis for post-migratory stress and mental health disorders? *J Psychosom Res*. 2020;130:109914. doi:10.1016/j.jpsychores.2019.109914.
399. Sareen J. Posttraumatic stress disorder in adults: impact, comorbidity, risk factors, and treatment. *Can J Psychiatry*. 2014;59(9):460–7. doi:10.1177/070674371405900902.
400. de Arellano MA, Andrews AR, Reid-Quiñones K, Vasquez D, Doherty LS, Danielson CK et al. Immigration trauma among Hispanic youth: missed by trauma assessments and predictive of depression and PTSD symptoms. *J Lat Psychol*. 2018;6(3):159–74. doi:10.1037/lat0000090.
401. Schlaudt VA, Bosson R, Williams MT, German B, Hooper LM, Frazier V et al. Traumatic experiences and mental health risk for refugees. *Int J Environ Res Public Health*. 2020;17(6):1943. doi:10.3390/ijerph17061943.
402. Wright AM, Talia YR, Aldhalimi A, Broadbridge CL, Jamil H, Lumley MA et al. Kidnapping and mental health in Iraqi refugees: the role of resilience. *J Immigr Minor Health*. 2017;19(1):98–107. doi:10.1007/s10903-015-0340-8.
403. Ainamani HE, Elbert T, Olema DK, Hecker T. Gender differences in response to war-related trauma and posttraumatic stress disorder - a study among the Congolese refugees in Uganda. *BMC Psychiatry*. 2020;20(1):17. doi:10.1186/s12888-019-2420-0.
404. Haer R, Scharpf F, Hecker T. The social legacies of conflict: the mediating role of mental health with regard to the association between war exposure and social capital of Burundian refugees. *Psychol Violence*. 2021;11(1):40–9. doi:10.1037/vio0000348.
405. Scharpf F, Mkinga G, Masath FB, Hecker T. A socio-ecological analysis of risk, protective and promotive factors for the mental health of Burundian refugee children living in refugee camps. *Eur Child Adolesc Psychiatry*. 2021;30(10):1651–62. doi:10.1007/s00787-020-01649-7.
406. Keller A, Joscelyne A, Granski M, Rosenfeld B. Pre-migration trauma exposure and mental health functioning among Central American migrants arriving at the US border. *PLoS One*. 2017;12(1):e0168692. doi:10.1371/journal.pone.0168692.
407. Rodin D, van Ommeren M. Commentary: explaining enormous variations in rates of disorder in trauma-focused psychiatric epidemiology after major emergencies. *Int J Epidemiol*. 2009;38(4):1045–8. doi:10.1093/ije/dyp203.
408. Al-Amin H, Singh R, Abdulrazzak M, Ghuloum S. Psychosocial and clinical profiles of the cases visiting the emergency department due to accidental self-harm and suicide attempts in Doha, Qatar: a retrospective study. *Community Ment Health J*. 2021;57(2):315–24. doi:10.1007/s10597-020-00650-3.
409. Itani T, Jacobsen KH, Kraemer A. Suicidal ideation and planning among Palestinian middle school students living in Gaza Strip, West Bank, and United Nations Relief and Works Agency (UNRWA) camps. *Int J Pediatr Adolesc Med*. 2017;4(2):54–60. doi:10.1016/j.jppam.2017.03.003.
410. Bukuluki P, Kisaakye P, Wandiembe SP, Besigwa S. Suicide ideation and psychosocial distress among refugee adolescents in Bidibidi settlement in West Nile, Uganda. *Discov Psychol*. 2021;1(1):3. doi:10.1007/s44202-021-00003-5.
411. Joarder T, Sutradhar I, Hasan MI, Bulbul MMI. A record review on the health status of Rohingya refugees in Bangladesh. *Cureus*. 2020;12(8):e9753. doi:10.7759/cureus.9753.
412. Rahman MR, Faiz MA, Nu MY, Hassan MR, Chakrabarty AK, Kabir I et al. A rapid assessment of health literacy and health status of Rohingya refugees living in Cox's Bazar, Bangladesh following the August 2017 exodus from Myanmar: a cross-sectional study. *Trop Med Infect Dis*. 2020;5(3):110. doi:10.3390/tropicalmed5030110.
413. Fischer L, Zarate A, Mozumder K, Elshazly M, Rosenbaum S. Barriers, attitudes, confidence and knowledge of mental health and psychosocial humanitarian staff in Cox's Bazar in responding to suicide risk. *Intervention*. 2021;19(2):242–8. doi:10.4103/INTV.INTV_53_20.
414. Björkenstam E, Helgesson M, Amin R, Mittendorfer-Rutz E. Mental disorders, suicide attempt and suicide: differences in the association in refugees compared with Swedish-born individuals. *Br J Psychiatry*. 2020;217(6):679–85. doi:10.1192/bjp.2019.215.
415. Sankaranarayanan A, Al-Amin H, Ghuloum S. Correlates of near-fatal deliberate self-harm in Qatar: a retrospective study of psychiatric admissions for suicidal behaviors. *Crisis*. 2020;41(2):121–7. doi:10.1027/0227-5910/a000613.

416. McMahon EM, Corcoran P, Keeley H, Cannon M, Carli V, Wasserman C et al. Mental health difficulties and suicidal behaviours among young migrants: multicentre study of European adolescents. *BJPsych Open*. 2017;3(6):291–9. doi:10.1192/bjpo.bp.117.005322.
417. Tarricone I, D'Andrea G, Jongsma HE, Tosato S, Gayer-Anderson C, Stilo SA et al. Migration history and risk of psychosis: results from the multinational EU-GEI study. *Psychol Med*. Epub 2021 Feb 10. doi:10.1017/S003329172000495X.
418. Morgan C, Charalambides M, Hutchinson G, Murray RM. Migration, ethnicity, and psychosis: toward a sociodevelopmental model. *Schizophr Bull*. 2010;36(4):655–64. doi:10.1093/schbul/sbq051.
419. Terhune J, Dykxhoorn J, Mackay E, Hollander AC, Kirkbride JB, Dalman C. Migrant status and risk of compulsory admission at first diagnosis of psychotic disorder: a population-based cohort study in Sweden. *Psychol Med*. 2020;52(2):362–71. doi:10.1017/S0033291720002068.
420. Dykxhoorn J, Hollander A-C, Lewis G, Magnusson C, Dalman C, Kirkbride JB. Risk of schizophrenia, schizoaffective, and bipolar disorders by migrant status, region of origin, and age-at-migration: a national cohort study of 1.8 million people. *Psychol Med*. 2019;49(14):2354–63. doi:10.1017/S0033291718003227.
421. Brandt L, Henssler J, Müller M, Wall S, Gabel D, Heinz A. Risk of psychosis among refugees: a systematic review and meta-analysis. *JAMA Psychiatry*. 2019;76(11):1133–40. doi:10.1001/jamapsychiatry.2019.1937.
422. Maguire J, Mifsud N, Seiler N, Nguyen T, Sizer H, McGorry P et al. Symptomatic, functional and service utilization outcomes of migrants with a first episode of psychosis. *Soc Psychiatry Psychiatr Epidemiol*. 2021;56(8):1389–97. doi:10.1007/s00127-020-02011-7.
423. Beni Yonis O, Khader Y, Jarboua A, Al-Bsoul MM, Al-Akour N, Alfaqih MA et al. Post-traumatic stress disorder among Syrian adolescent refugees in Jordan. *J Public Health*. 2020;42(2):319–24. doi:10.1093/pubmed/fdz026.
424. Escot R, Mahfouz M, Feghaly Saade I, Varady CJ. Insights into Syrian refugee children's mental health status & coping mechanisms. Beirut: Caritas Lebanon Migrant Center; 2016 (<https://reliefweb.int/sites/reliefweb.int/files/resources/Final-Mental.pdf>, accessed 2 April 2022).
425. Shah SM, Al Dhaheri F, Albanna A, Al Jaber N, Al Eissaee S, Alshehhi NA et al. Self-esteem and other risk factors for depressive symptoms among adolescents in United Arab Emirates. *PLOS One*. 2020;15(1):e0227483. doi:10.1371/journal.pone.0227483.
426. MacLean SA, Agyeman PO, Walther J, Singer EK, Baranowski KA, Katz CL. Mental health of children held at a United States immigration detention center. *Soc Sci Med*. 2019;230:303–8. doi:10.1016/j.socscimed.2019.04.013.
427. Blackmore R, Gray KM, Boyle JA, Fazel M, Ranasinha S, Fitzgerald G et al. Systematic review and meta-analysis: the prevalence of mental illness in child and adolescent refugees and asylum seekers. *J Am Acad Child Adolesc Psychiatry*. 2020;59(6):705–14. doi:10.1016/j.jaac.2019.11.011.
428. Polanczyk GV, Salum GA, Sugaya LS, Caye A, Rohde LA. Annual research review: a meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *J Child Psychol Psychiatry*. 2015;56(3):345–65. doi:10.1111/jcpp.12381.
429. Meyer SR, Yu G, Hermsilla S, Stark L. Latent class analysis of violence against adolescents and psychosocial outcomes in refugee settings in Uganda and Rwanda. *Glob Ment Health*. 2017;4:e19. doi:10.1017/gmh.2017.17.
430. Hirani K, Cherian S, Mutch R, Payne DN. Identification of health risk behaviours among adolescent refugees resettling in Western Australia. *Arch Dis Child*. 2018;103(3):240–6. doi:10.1136/archdischild-2017-313451.
431. Fernandez E, Lee J-S, McNamara P. "Uprooted from everything that attaches you": long-term outcomes of former child migrants in care in the twentieth century in Australia. *Br J Soc Work*. 2019;49(2):523–45. doi:10.1093/bjsw/bcy070.
432. Arega NT. Posttraumatic stress among Eritrean unaccompanied refugee minors in Ethiopia. *Int J Migr Health Soc Care*. 2021;17(1):1–15. doi:10.1108/IJMHS-02-2020-0016.
433. Emedo M, Habeeb S, Joyce M, Anderson S, Lorek A. Adverse experiences of unaccompanied asylum seeking children and the impact on their emotional wellbeing and mental health needs. *Arch Dis Child*. 2018;103(1). doi:10.1136/archdischild-2018-rcpch.4.
434. Jarlby F, Goosen S, Derluyn I, Vitus K, Jervelund SS. What can we learn from unaccompanied refugee adolescents' perspectives on mental health care in exile? *Eur J Pediatr*. 2018;177(12):1767–74. doi:10.1007/s00431-018-3249-0.
435. Jensen TK, Skar A-MS, Andersson ES, Birkeland MS. Long-term mental health in unaccompanied refugee minors: pre- and post-flight predictors. *Eur Child Adolesc Psychiatry*. 2019;28(12):1671–82. doi:10.1007/s00787-019-01340-6.
436. Longobardi C, Veronesi TG, Prino LE. Abuses, resilience, behavioural problems and post-traumatic stress symptoms among unaccompanied migrant minors: an Italian cross-sectional exploratory study. *Psychiatr Psychol Klin*. 2017;17(2):87–92. doi:10.15557/PIPK.2017.0009.

437. Sarkadi A, Ådahl K, Stenvall E, Ssegonja R, Batti H, Gavra P et al. Teaching recovery techniques: evaluation of a group intervention for unaccompanied refugee minors with symptoms of PTSD in Sweden. *Eur Child Adolesc Psychiatry*. 2018;27(4):467–79. doi:10.1007/s00787-017-1093-9.
438. Jakobsen M, Meyer DeMott MA, Wentzel-Larsen T, Heir T. The impact of the asylum process on mental health: a longitudinal study of unaccompanied refugee minors in Norway. *BMJ Open*. 2017;7(6):e015157. doi:10.1136/bmjopen-2016-015157.
439. Davies A, Basten A, Frattini C. Migration: a social determinant of the health of migrants. Geneva: International Organization for Migration; 2009 (<https://migrationhealthresearch.iom.int/migration-social-determinant-health-migrants>, accessed 21 April 2022).
440. Gurrola MA, Ayón C. Immigration policies and social determinants of health: is immigrants' health at risk? *Race Soc Probl*. 2018;10(3):209–20. doi:10.1007/s12552-018-9239-z.
441. Agu J, Lobo R, Crawford G, Chigwada B. Migrant sexual health help-seeking and experiences of stigmatization and discrimination in Perth, Western Australia: exploring barriers and enablers. *Int J Environ Res Public Health*. 2016;13(5):485. doi:10.3390/ijerph13050485.
442. Ziersch A, Walsh M, Baak M, Rowley G, Oudih E, Mwanri L. "It is not an acceptable disease": a qualitative study of HIV-related stigma and discrimination and impacts on health and wellbeing for people from ethnically diverse backgrounds in Australia. *BMC Public Health*. 2021;21(1):779. doi:10.1186/s12889-021-10679-y.
443. Khatoon S, Budhathoki SS, Bam K, Thapa R, Bhatt LP, Basnet B et al. Socio-demographic characteristics and the utilization of HIV testing and counselling services among the key populations at the Bhutanese refugee camps in Eastern Nepal. *BMC Res Notes*. 2018;11(1):535. doi:10.1186/s13104-018-3657-2.
444. Pinehas LN, van Wyk NC, Leech R. Healthcare needs of displaced women: Osire refugee camp, Namibia. *Int Nurs Rev*. 2016;63(1):139–47. doi:10.1111/inr.12241.
445. Steenberg B. Patients and personhood: perceptions of HIV in Mozambican immigrants in South Africa. *Med Anthropol*. 2020;39(3):211–24. doi:10.1080/01459740.2019.1677646.
446. Steenberg B. HIV-positive Mozambican migrants in South Africa: loneliness, secrecy and disclosure. *Cult Health Sex*. 2020;22(1):48–63. doi:10.1080/13691058.2019.1571230.
447. Ojikutu BO, Nnaji C, Sithole-Berk J, Masongo D, Nichols K, Weeks N et al. African born women living with HIV in the United States: unmet needs and opportunities for intervention. *AIDS Care*. 2018;30(12):1542–50. doi:10.1080/09540121.2018.1497767.
448. Tohme J, Egan JE, Stall R, Wagner G, Mokhbat J. HIV prevalence and demographic determinants of unprotected anal sex and HIV testing among male refugees who have sex with men in Beirut, Lebanon. *AIDS Behav*. 2016;20 (suppl 3):408–16. doi:10.1007/s10461-016-1484-9.
449. Gosselin A, Ravalihasy A, Pannetier J, Lert F, Desgrées du Loû A; Parcours Study Group. When and why? Timing of post-migration HIV acquisition among sub-Saharan migrants in France. *Sex Transm Infect*. 2020;96(3):227–31. doi:10.1136/sextrans-2019-054080.
450. Ndumbi P, del Romero J, Pulido F, Velasco Arribas M, Dronda F, Blanco Ramos JR et al. Barriers to health care services for migrants living with HIV in Spain. *Eur J Public Health*. 2018;28(3):451–7. doi:10.1093/eurpub/ckx225.
451. Dana DP, Gumbie T, Grinker R. Access to HIV/AIDS health services by refugees in the Eastern Cape, South Africa. South Africa: Eastern Cape Socio-Economic Consultative Council; 2018 (https://www.ecsecc.org/datarepository/documents/ecsecc-wp-access-to-hiv-wp-22_95890.pdf, accessed 2 April 2022).
452. Musumari PM, Chamchan C. Correlates of HIV testing experience among migrant workers from Myanmar residing in Thailand: a secondary data analysis. *PLOS One*. 2016;11(5):e0154669. doi:10.1371/journal.pone.0154669.
453. Thapa S, Bista N, Hannes K, Buve A, Vermandere M, Mathei C. Vulnerability of wives of Nepalese labor migrants to HIV infection: integrating quantitative and qualitative evidence. *Women Health*. 2016;56(7):745–66. doi:10.1080/03630242.2015.1118726.
454. Correa-Agudelo E, Kim H-Y, Musuka GN, Mukandavire Z, Akullian A, Cuadros DF. Associated health and social determinants of mobile populations across HIV epidemic gradients in southern Africa. *J Migr Health*. 2021;3:100038. doi:10.1016/j.jmh.2021.100038.
455. Tohme J, Egan JE, Friedman MR, Stall R. Psycho-social correlates of condom use and HIV testing among MSM refugees in Beirut, Lebanon. *AIDS Behav*. 2016;20 (suppl 3):417–25. doi:10.1007/s10461-016-1498-3.
456. Rebolledo-Ponietsky K, Munayco CV, Mezones-Holguín E. Migration crisis in Venezuela: impact on HIV in Peru. *J Travel Med*. 2019;26(2):tay155. doi:10.1093/jtm/tay155.
457. Zhang Y, Liang B, Liu D, Wei G, Mo S, Nong A et al. Migrant female sex workers working at the Sino-Vietnamese border for a short time have a higher risk of HIV transmission: a consecutive cross-sectional study. *AIDS Res Ther*. 2020;17(1):4. doi:10.1186/s12981-020-0260-0.
458. Tschirhart N, Thi SS, Swe LL, Nosten F, Foster AM. Treating the invisible: gaps and opportunities for enhanced TB control along the Thailand–Myanmar border. *BMC Health Serv Res*. 2017;17(1):29. doi:10.1186/s12913-016-1954-9.

459. Infante C, Aggleton P, Pridmore P. Forms and determinants of migration and HIV/AIDS-related stigma on the Mexican-Guatemalan border. *Qual Health Res.* 2009;19(12):1656–68. doi:10.1177/1049732309353909.
460. HIV/AIDS surveillance in Europe 2020 (2019 data). Stockholm: European Centre for Disease Prevention and Control; 2020 (<https://www.ecdc.europa.eu/en/publications-data/hiv-aids-surveillance-europe-2020-2019-data>, accessed 2 April 2022).
461. Kerani RP, Satcher Johnson A, Buskin SE, Rao D, Golden MR, Hu X et al. The epidemiology of HIV among people born outside the United States, 2010–2017. *Public Health Rep.* 2020;135(5):611–20. doi:10.1177/0033354920942623.
462. Demeke HB, Johnson AS, Wu B, Nwangwu-lke N, King H, Dean HD. Differences between U.S.-born and non-U.S.-born black adults reported with diagnosed HIV infection: United States, 2008–2014. *J Immigr Minor Health.* 2019;21(1):30–8. doi:10.1007/s10903-018-0699-4.
463. Taylor TN, DeHovitz J, Hirshfield S. Intersectional stigma and multi-level barriers to HIV testing among foreign-born black men from the Caribbean. *Front Public Health.* 2020;7:373. doi:10.3389/fpubh.2019.00373.
464. Pannetier J, Ravalihasy A, Lydié N, Lert F, Desgrées du Lou A, Parcours Study Group. Prevalence and circumstances of forced sex and post-migration HIV acquisition in sub-Saharan African migrant women in France: an analysis of the ANRS-PARCOURS retrospective population-based study. *Lancet Public Health.* 2018;3(1):e16–23. doi:10.1016/S2468-2667(17)30211-6.
465. Desgrées-du-Lou A, Pannetier J, Ravalihasy A, Le Guen M, Gosselin A, Panjo H et al. Is hardship during migration a determinant of HIV infection? Results from the ANRS PARCOURS study of sub-Saharan African migrants in France. *AIDS.* 2016;30(4):645–56. doi:10.1097/QAD.0000000000000957.
466. Alvarez-del Arco D, Fakoya I, Thomadakis C, Pantazis N, Touloumi G, Gennotte A-F et al. High levels of postmigration HIV acquisition within nine European countries. *AIDS.* 2017;31(14):1979–88. doi:10.1097/QAD.0000000000001571.
467. Ayuttacorn A, Tangmunkongvorakul A, Musumari PM, Srithanaviboonchai K, Jirattikorn A, Aurlpibul L. Disclosure of HIV status among Shan female migrant workers living with HIV in Northern Thailand: a qualitative study. *PLOS One.* 2019;14(5):e0216382. doi:10.1371/journal.pone.0216382.
468. Kwena Z, Nakamanya S, Nanyonjo G, Okello E, Fast P, Ssetaala A et al. Understanding mobility and sexual risk behaviour among women in fishing communities of Lake Victoria in East Africa: a qualitative study. *BMC Public Health.* 2020;20(1):944. doi:10.1186/s12889-020-09085-7.
469. Shannon K, Crago A-L, Baral SD, Bekker L-G, Kerrigan D, Decker MR et al. The global response and unmet actions for HIV and sex workers. *Lancet.* 2018;392(10148):698–710. doi:10.1016/S0140-6736(18)31439-9.
470. Medland NA, Chow EPF, Read THR, Ong JJ, Chen M, Denham I et al. Incident HIV infection has fallen rapidly in men who have sex with men in Melbourne, Australia (2013–2017) but not in the newly-arrived Asian-born. *BMC Infect Dis.* 2018;18(1):410. doi:10.1186/s12879-018-3325-0.
471. Blackshaw LCD, Chow EPF, Varma R, Healey L, Templeton DJ, Basu A et al. Characteristics of recently arrived Asian men who have sex with men diagnosed with HIV through sexual health services in Melbourne and Sydney. *Aust N Z J Public Health.* 2019;43(5):424–8. doi:10.1111/1753-6405.12926.
472. Hu J, Gu X, Tao X, Qian Y, Babu GR, Wang G et al. Prevalence and trends of HIV, syphilis, and HCV in migrant and resident men who have sex with men in Shandong, China: results from a serial cross-sectional study. *PLOS One.* 2017;12(1):e0170443. doi:10.1371/journal.pone.0170443.
473. Nelson LE, Tharao W, Husbands W, Sa T, Zhang N, Kushwaha S et al. The epidemiology of HIV and other sexually transmitted infections in African, Caribbean and Black men in Toronto, Canada. *BMC Infect Dis.* 2019;19(1):294. doi:10.1186/s12879-019-3925-3.
474. Migrant health: access to HIV prevention, treatment and care for migrant populations in EU/EEA countries. Stockholm: European Centre for Disease Prevention and Control, 2009 (https://www.ecdc.europa.eu/sites/default/files/media/en/publications/Publications/0907_TER_Migrant_health_HIV_Access_to_treatment.pdf, accessed 26 June 2022).
475. Masebo W. Accessing ART in Malawi while living in South Africa - a thematic analysis of qualitative data from undocumented Malawian migrants. *Glob Public Health.* 2019;14(5):621–35. doi:10.1080/17441692.2018.1524920.
476. Faturiyele I, Karletsos D, Ntene-Sealiete K, Musekiwa A, Khabo M, Mariti M et al. Access to HIV care and treatment for migrants between Lesotho and South Africa: a mixed methods study. *BMC Public Health.* 2018;18(1):668. doi:10.1186/s12889-018-5594-3.
477. Been SK, Vijver DAMC, Nieuwkerk PT, Is B, Stutterheim SE, Bos AER. Risk factors for non-adherence to cART in immigrants with HIV living in the Netherlands: results from the Rotterdam Adherence (ROAD) Project. *PLOS One.* 2016;11(10):e0162800. doi:10.1371/journal.pone.0162800.
478. Marukutira T, Yin D, Cressman L, Kariuki R, Malone B, Spelman T et al. Clinical outcomes of a cohort of migrants and citizens living with human immunodeficiency virus in Botswana: implications for Joint United Nation Program on HIV and AIDS 90-90-90 targets. *Medicine (Baltimore).* 2019;98(23):e15994. doi:10.1097/MD.00000000000015994.
479. Been SK, Yildiz E, Nieuwkerk PT, Pogány K, van de Vijver DAMC, Verbon A. Self-reported adherence and pharmacy refill adherence are both predictive for an undetectable viral load among HIV-infected migrants receiving cART. *PLOS One.* 2017;12(11):e0186912. doi:10.1371/journal.pone.0186912.

480. Kronfli N, Linthwaite B, Sheehan N, Cox J, Hardy I, Lebouché B et al. Delayed linkage to HIV care among asylum seekers in Quebec, Canada. *BMC Public Health*. 2019;19(1):1683. doi:10.1186/s12889-019-8052-y.
481. Gray C, Lobo R, Narciso L, Oudih E, Gunaratnam P, Thorpe R et al. Why I can't, won't or don't test for HIV: insights from Australian migrants born in sub-Saharan Africa, Southeast Asia and Northeast Asia. *Int J Environ Res Public Health*. 2019;16(6):1034. doi:10.3390/ijerph16061034.
482. Shakya P, Tanaka M, Shibamura A, Jimba M. Nepalese migrants in Japan: What is holding them back in getting access to healthcare? *PLOS One*. 2018;13(9):e0203645. doi:10.1371/journal.pone.0203645.
483. Ryan KE, Wilkinson AL, Asselin J, Leiting DP, Locke P, Pedrana A et al. Assessment of service refinement and its impact on repeat HIV testing by client's access to Australia's universal healthcare system: a retrospective cohort study. *J Int AIDS Soc*. 2019;22(8):e25353. doi:10.1002/jia2.25353.
484. Ravicz M, Muhongayire B, Kamagaju S, Klabbers RE, Faustin Z, Kambugu A et al. Using intervention mapping methodology to design an HIV linkage intervention in a refugee settlement in rural Uganda. *AIDS Care*. 2022;34(4):446–58. doi:10.1080/09540121.2021.1900532.
485. Gray RT, Watson J, Cogle AJ, Smith DE, Hoy JF, Bastian LA et al. Funding antiretroviral treatment for HIV-positive temporary residents in Australia prevents transmission and is inexpensive. *Sex Health*. 2018;15(1):13–19. doi:10.1071/SH16237.
486. Global tuberculosis programme [website]. Geneva: World Health Organization; 2020 (<https://www.who.int/teams/global-tuberculosis-programme/data>, accessed 4 May 2022).
487. Ali F, Shafee M, Akbar A, Khan N, Khetrana MA, Rahman F et al. Frequency of pulmonary tuberculosis in Afghan asylum seekers dwelling in Balochistan, Pakistan. *Rawal Med J*. 2018;43(4):577–80.
488. Chan EYY, Chiu CP, Chan GKW. Medical and health risks associated with communicable diseases of Rohingya refugees in Bangladesh 2017. *Int J Infect Dis*. 2018;68:39–43. doi:10.1016/j.ijid.2018.01.001.
489. Aldridge RW, Zenner D, White PJ, Williamson EJ, Muzyamba MC, Dhavan P et al. Tuberculosis in migrants moving from high-incidence to low-incidence countries: a population based cohort study. *Lancet*. 2016;388(10059):2510–18. doi:10.1016/S0140-6736(16)31008-X.
490. Tuberculosis surveillance and monitoring in Europe 2021: 2019 data. Copenhagen: WHO Regional Office for Europe; 2021 (<https://apps.who.int/iris/handle/10665/340210>, accessed 2 April 2022).
491. Boyd AT, Cookson ST, Almashayek I, Yaacoub H, Qayyum MS, Galev A. An evaluation of a tuberculosis case-finding and treatment program among Syrian refugees - Jordan and Lebanon, 2013–2015. *Confl Health*. 2019;13(1):32. doi:10.1186/s13031-019-0213-1.
492. Global tuberculosis report 2021. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/rest/bitstreams/1379788/retrieve>, accessed 21 April 2022).
493. Ali S, Rao MB, Sahly AA, Alfageeh A, Bakari A. A retrospective study to investigate the impact of immigration on tuberculosis control program by DOTS strategy in Gazan Province, Saudi Arabia. *J Public Health*. 2018;26(2):163–75. doi:10.1007/s10389-017-0838-8.
494. van den Boogaard J, Slump E, Schimmel HJ, van der Hoek W, van den Hof S, de Vries G. High incidence of active tuberculosis in asylum seekers from Eritrea and Somalia in the first 5 years after arrival in the Netherlands. *Emerg Infect Dis*. 2020;26(4):675–81. doi:10.3201/eid2604.190123.
495. Vo LNQ, Codlin AJ, Forse RJ, Nguyen HT, Vu TN, Van Truong V et al. Tuberculosis among economic migrants: a cross-sectional study of the risk of poor treatment outcomes and impact of a treatment adherence intervention among temporary residents in an urban district in Ho Chi Minh City, Viet Nam. *BMC Infect Dis*. 2020;20(1):134. doi:10.1186/s12879-020-4865-7.
496. Aldridge RW, Zenner D, White PJ, Muzyamba MC, Loutet M, Dhavan P et al. Prevalence of and risk factors for active tuberculosis in migrants screened before entry to the UK: a population-based cross-sectional study. *Lancet Infect Dis*. 2016;16(8):962–70. doi:10.1016/S1473-3099(16)00072-4.
497. Benjumea-Bedoya D, Becker M, Haworth-Brockman M, Balakumar S, Hiebert K, Lutz J-A et al. Integrated care for latent tuberculosis infection (LTBI) at a primary health care facility for refugees in Winnipeg, Canada: a mixed-methods evaluation. *Front Public Health*. 2019;7:57. doi:10.3389/fpubh.2019.00057.
498. Tschirhart N, Sein T, Nosten F, Foster AM. Refugee and migrant patient perspectives on travel and tuberculosis along the Thailand–Myanmar border: a qualitative study. *PLOS One*. 2016;11(8):e0160222. doi:10.1371/journal.pone.0160222.
499. Pawlowski A, Jansson M, Sköld M, Rottenberg ME, Källenius G. Tuberculosis and HIV co-infection. *PLOS Pathog*. 2012;8(2):e1002464. doi:10.1371/journal.ppat.1002464.
500. Legesse T, Admenur G, Gebregzabher S, Woldegebriel E, Fantahun B, Tsegay Y et al. Tuberculosis (TB) in the refugee camps in Ethiopia: trends of case notification, profile, and treatment outcomes, 2014 to 2017. *BMC Infect Dis*. 2021;21(1):139. doi:10.1186/s12879-021-05828-y.

501. Ejeta E, Beyene G, Balay G, Bonga Z, Abebe G. Factors associated with unsuccessful treatment outcome in tuberculosis patients among refugees and their surrounding communities in Gambella Regional State, Ethiopia. *PLOS One*. 2018;13(10):e0205468. doi:10.1371/journal.pone.0205468.
502. Confronting inequalities: lessons for pandemic responses from 40 years of AIDS. Global AIDS update. Geneva: UNAIDS; 2021 (https://www.unaids.org/sites/default/files/media_asset/2021-global-aids-update_en.pdf, accessed 30 June 2022).
503. Orozco-Andrade I, Acosta-Loya JA, Bravo-Rodríguez G, Martínez-Lozano FN, Espinoza-Hernández ME, Enríquez-Porrás A et al. Patrones de farmacoresistencia en población migrante con tuberculosis pulmonar [Drug resistance patterns in migrant population with pulmonary tuberculosis]. *Neumol Cir Tórax*. 2018;77(4):247–57 (in Spanish).
504. Pandey S, Lavu E, Congdon J, Moke R, Bainomugisa A, Coulter C. Characterization of *pncA* mutations in multi-drug and pyrazinamide resistant *Mycobacterium tuberculosis* isolates cultured from Queensland migrants and Papua New Guinea residents. *Tuberculosis*. 2018;111:109–13. doi:10.1016/j.tube.2018.06.006.
505. Helbling P, Kröger S, Haas W, Brusin S, Cirillo DM, Groenheit R et al. Screening of migrants for tuberculosis identifies patients with multidrug-resistant tuberculosis but is not sufficient. *Clin Microbiol Infect*. 2018;24(8):918–19. doi:10.1016/j.cmi.2018.03.015.
506. Riccardi N, Pontarelli A, Alagna R, Sadari L, Ferrarese M, Castellotti P et al. Epidemiology and treatment outcome of MDR and pre-XDR TB in international migrants at two reference centers in the north of Italy: a cross-sectional study coordinated by Stop TB Italia Onlus. *Public Health*. 2020;180:17–21. doi:10.1016/j.puhe.2019.10.022.
507. Jensenius M, Winje BA, Blomberg B, Mengshoel AT, von der Lippe B, Hannula R et al. Multidrug-resistant tuberculosis in Norway: a nationwide study, 1995–2014. *Int J Tuberc Lung Dis*. 2016;20(6):786–92. doi:10.5588/ijtld.15.0895.
508. Ködmön C, Zucs P, van der Werf MJ. Migration-related tuberculosis: epidemiology and characteristics of tuberculosis cases originating outside the European Union and European Economic Area, 2007 to 2013. *Euro Surveill*. 2016;21(12). doi:10.2807/1560-7917.ES.2016.21.12.30164.
509. Furukawa NW, Haider MZ, Allen SJ, Carlson SL, Lindquist SW. Resistance to first-line antituberculosis drugs in Washington state by region of birth and implications for latent tuberculosis treatment among foreign-born individuals. *Am J Trop Med Hyg*. 2017;96(3):543–49. doi:10.4269/ajtmh.16-0662.
510. Ali M, Howady F, Munir W, Karim H, Al-Suwaidi Z, Al-Maslamani M et al. Drug-resistant tuberculosis: an experience from Qatar. *Libyan J Med*. 2020;15(1):1744351. doi:10.1080/19932820.2020.1744351.
511. Al-Ghaffli H, Varghese B, Enani M, Alrajhi A, Johani SA, Albarrak A. Demographic risk factors for extra-pulmonary tuberculosis among adolescents and adults in Saudi Arabia. *PLOS One*. 2019;14(3):e0213846. doi:10.1371/journal.pone.0213846.
512. Varghese B, Enani M, Alrajhi A, Al Johani S, Albarak A, Althawadi S et al. Impact of *Mycobacterium tuberculosis* complex lineages as a determinant of disease phenotypes from an immigrant rich moderate tuberculosis burden country. *Respir Res*. 2018;19(1):259. doi:10.1186/s12931-018-0966-x.
513. Hayward SE, Rustage K, Nellums LB, van der Werf MJ, Noori T, Boccia D et al. Extrapulmonary tuberculosis among migrants in Europe, 1995 to 2017. *Clin Microbiol Infect*. 2021;27(9):1347. doi:10.1016/j.cmi.2020.12.006.
514. Dale KD, Trauer JM, Dodd PJ, Houben RMGJ, Denholm JT. Estimating the prevalence of latent tuberculosis in a low-incidence setting: Australia. *Eur Respir J*. 2018;52(6):1801218. doi:10.1183/13993003.01218-2018.
515. Yap P, Tan KH, Lim WY, Barkham T, Tan LWL, Chen MI-C et al. Prevalence of and risk factors associated with latent tuberculosis in Singapore: a cross-sectional survey. *Int J Infect Dis*. 2018;72:55–62. doi:10.1016/j.ijid.2018.05.004.
516. Kawatsu L, Uchimura K, Ohkado A. Trend and treatment outcomes of latent tuberculosis infection among migrant persons in Japan: retrospective analysis of Japan tuberculosis surveillance data. *BMC Infect Dis*. 2021;21(1):42. doi:10.1186/s12879-020-05712-1.
517. Dara M, Solovic I, Sotgiu G, D'Ambrosio L, Centis R, Tran R et al. Tuberculosis care among refugees arriving in Europe: a ERS/WHO Europe Region survey of current practices. *Eur Respir J*. 2016;48(3):808–17. doi:10.1183/13993003.00840-2016.
518. Public health guidance on screening and vaccination for infectious diseases in newly arrived migrants within the EU/EEA. Stockholm: European Centre for Disease Prevention and Control; 2018 (<https://www.ecdc.europa.eu/sites/default/files/documents/Public%20health%20guidance%20on%20screening%20and%20vaccination%20of%20migrants%20in%20the%20EU%20EEA.pdf>, accessed 30 June 2022).
519. Latent tuberculosis infection: updated and consolidated guidelines for programmatic management. Geneva: World Health Organization; 2018 (<https://apps.who.int/iris/handle/10665/260233>, accessed 2 April 2022).
520. Pampaloni A, Locatelli ME, Rullo EV, Alaimo S, Cosentino F, Marino A et al. "Diagnosis on the Dock" project: a proactive screening program for diagnosing pulmonary tuberculosis in disembarking refugees and new SEI model. *Int J Infect Dis*. 2021;106:98–104. doi:10.1016/j.ijid.2021.03.032.
521. Pittalis S, Piselli P, Contini S, Gualano G, Alma MG, Tadolini M et al. Socioeconomic status and biomedical risk factors in migrants and native tuberculosis patients in Italy. *PLOS One*. 2017;12(12):e0189425. doi:10.1371/journal.pone.0189425.

522. Campbell JR, Johnston JC, Cook VJ, Sadatsafavi M, Elwood RK, Marra F. Cost-effectiveness of latent tuberculosis infection screening before immigration to low-incidence countries. *Emerg Infect Dis.* 2019;25(4):661–71. doi:10.3201/eid2504.171630.
523. Hargreaves S, Nellums LB, Johnson C, Goldberg J, Pantelidis P, Rahman A et al. Delivering multi-disease screening to migrants for latent TB and blood-borne viruses in an emergency department setting: a feasibility study. *Travel Med Infect Dis.* 2020;36:101611. doi:10.1016/j.tmaid.2020.101611.
524. Öhd JN, Lönnroth K, Abubakar I, Aldridge RW, Erkens C, Jonsson J et al. Building a European database to gather multi-country evidence on active and latent TB screening for migrants. *Int J Infect Dis.* 2019;80S:S45–9. doi:10.1016/j.ijid.2019.02.041.
525. Trauer JM, Williams B, Laemmle-Ruff I, Horyniak D, Caplice LVS, McBryde ES et al. Tuberculosis in migrants to Australia: outcomes of a national screening program. *Lancet Reg Health West Pac.* 2021;10:100135. doi:10.1016/j.lanwpc.2021.100135.
526. Peghin M, Rodriguez-Pardo D, Sanchez-Montalva A, Pellisé F, Rivas A, Tortola T et al. The changing epidemiology of spinal tuberculosis: the influence of international immigration in Catalonia, 1993–2014. *Epidemiol Infect.* 2017;145(10):2152–60. doi:10.1017/S0950268817000863.
527. Broderick C, Hopkins S, Mack DJF, Aston W, Pollock R, Skinner JA et al. Delays in the diagnosis and treatment of bone and joint tuberculosis in the United Kingdom. *Bone Joint J.* 2018;100-B(1):119–24. doi:10.1302/0301-620X.100B1.BJJ-2017-0357.R1.
528. Kentley J, Ooi JL, Potter J, Tiberi S, O'Shaughnessy T, Langmead L et al. Intestinal tuberculosis: a diagnostic challenge. *Trop Med Int Health.* 2017;22(8):994–9. doi:10.1111/tmi.12908.
529. Dođru S, Döner P. Frequency and outcomes of new patients with pulmonary tuberculosis in Hatay province after Syrian civil war. *Indian J Tuberc.* 2017;64(2):83–8. doi:10.1016/j.ijtb.2016.11.034.
530. El Guamri Y, Amahmid O, Zenjari K, Bouhout S, Ait Mouh M, Ait Melloul A et al. [Imported malaria in the region of Marrakech-Safi, Morocco, between 1996 and 2016]. *Bull Soc Pathol Exot.* 2018;111(2):104–8. doi:10.3166/bspe-2018-0014.
531. Farag E, Bansal D, Chehab MAH, Al-Dahshan A, Bala M, Ganesan N et al. Epidemiology of malaria in the State of Qatar, 2008–2015. *Mediterr J Hematol Infect Dis.* 2018;10(1):e2018050. doi:10.4084/MJHID.2018.050.
532. Ismail KA, Abdelwahab MM, Rezk HM, Khalifa AM. Hyalouranin role in pathophysiology of different species of Plasmodium. *Infect Dis Clin Pract.* 2016;24(5):280–2. doi:10.1097/IPC.0000000000000412.
533. Izri A, Cojean S, Leblanc C, Cohen Y, Bouchaud O, Durand R. Plasmodium vivax severe imported malaria in two migrants in France. *Malar J.* 2019;18(1):422. doi:10.1186/s12936-019-3067-5.
534. Roggelin L, Tappe D, Noack B, Addo MM, Tannich E, Rothe C. Sharp increase of imported Plasmodium vivax malaria seen in migrants from Eritrea in Hamburg, Germany. *Malar J.* 2016;15:325. doi:10.1186/s12936-016-1366-7.
535. Pérez-Molina JA, López-Polín A, Treviño B, Molina I, Goikoetxea J, Díaz-Menéndez M et al. 6-year review of +Redivi: a prospective registry of imported infectious diseases in Spain. *J Travel Med.* 2017;24(5). doi:10.1093/jtm/tax035.
536. Boga JA, Casado L, Fernández-Suarez J, Moran N, Rodríguez-Perez M, Martínez-Sela M et al. Screening program for imported diseases in immigrant women: analysis and implications from a gender-oriented perspective. *Am J Trop Med Hyg.* 2020;103(1):480–4. doi:10.4269/ajtmh.19-0687.
537. Jovanovic S, Dakic Z, Lavadinović L, Poluga J, Malinic J, Karić U et al. Changing trend of imported Plasmodium malaria cases by origins and species in Serbia. *J Infect Public Health.* 2020;13:365–6. doi:10.1016/j.jiph.2020.01.161.
538. Brindicci G, Santoro CR, Loconsole D, Martinelli D, Prato R, Lonero G et al. A cluster of cryptic Plasmodium falciparum malaria in African migrants in southern Italy, October 2017. *Vector Borne Zoonotic Dis.* 2020;20(12):927–31. doi:10.1089/vbz.2019.2607.
539. Iqbal J, Al-Awadhi M, Ahmad S. Decreasing trend of imported malaria cases but increasing influx of mixed P. falciparum and P. vivax infections in malaria-free Kuwait. *PLOS One.* 2020;15(12):e0243617. doi:10.1371/journal.pone.0243617.
540. Al-Rumhi A, Al-Hashami Z, Al-Hamidhi S, Gadalla A, Naeem R, Ranford-Cartwright L et al. Influx of diverse, drug resistant and transmissible Plasmodium falciparum into a malaria-free setting in Qatar. *BMC Infect Dis.* 2020;20(1):413. doi:10.1186/s12879-020-05111-6.
541. Alshahrani AM, Abdelgader TM, Saeed I, Al-Akshami A, Al-Ghamdi M, Al-Zahrani MH et al. The changing malaria landscape in Aseer region, Kingdom of Saudi Arabia: 2000–2015. *Malar J.* 2016;15(1):538. doi:10.1186/s12936-016-1581-2.
542. Yang C, Zhang H, Zhou R, Qian D, Liu Y, Zhao Y et al. Polymorphisms of Plasmodium falciparum k13-propeller gene among migrant workers returning to Henan Province, China from Africa. *BMC Infect Dis.* 2017;17(1):560. doi:10.1186/s12879-017-2634-z.
543. Smith JL, Ghimire P, Rijal KR, Maglior A, Hollis S, Andrade-Pacheco R et al. Designing malaria surveillance strategies for mobile and migrant populations in Nepal: a mixed-methods study. *Malar J.* 2019;18(1):158. doi:10.1186/s12936-019-2791-1.

544. Wen S, Harvard KE, Gueye CS, Canavati SE, Chancellor A, Ahmed B-N et al. Targeting populations at higher risk for malaria: a survey of national malaria elimination programmes in the Asia Pacific. *Malar J*. 2016;15(1):271. doi:10.1186/s12936-016-1319-1.
545. Kheang ST, Lin MA, Lwin S, Naing YH, Yazar P, Kak N et al. Malaria case detection among mobile populations and migrant workers in Myanmar: comparison of 3 service delivery approaches. *Glob Health Sci Pract*. 2018;6(2):384–9. doi:10.9745/GHSP-D-17-00318.
546. Ariza-Abril JS, Marcela-Cifuentes Á, Calderón-Jaramillo M, Rivera D, Rivillas-García JC. Uso de servicios de salud y enfermedades transmisibles de la población migrante y refugiada venezolana [Use of health services and communicable diseases in the Venezuelan migrant and refugee population]. *Salud UIS*. 2020;52(4):392–401 (in Spanish). doi:10.18273/revsal.v52n4-2020006.
547. Refugee health report Uganda, June 2019. Ministry of Health Knowledge Management Portal. Kampala: Ministry of Health of Uganda; 2019 (<http://library.health.go.ug/publications/refugees/refugee-health-report-uganda-june-2019>, accessed 3 April 2022).
548. Ahmed A, Mulatu K, Eflu B. Prevalence of malaria and associated factors among under-five children in Sherkole refugee camp, Benishangul-Gumuz region, Ethiopia. A cross-sectional study. *PLOS One*. 2021;16(2):e0246895. doi:10.1371/journal.pone.0246895.
549. Coldiron ME, Lasry E, Bouhenia M, Das D, Okui P, Nyehangane D et al. Intermittent preventive treatment for malaria among children in a refugee camp in Northern Uganda: lessons learned. *Malar J*. 2017;16(1):218. doi:10.1186/s12936-017-1869-x.
550. iRHIS: integrated refugee health information system [website]. Geneva: Office of the United Nations High Commissioner for Refugees; 2022 (<https://his.unhcr.org/home>, accessed 4 May 2022).
551. Standardised expanded nutrition survey: data dashboard [website]. Geneva: Office of the United Nations High Commissioner for Refugees; 2022 (<https://sens.unhcr.org/data-dashboard/>, accessed 4 May 2022).
552. Canavati SE, Quintero CE, Lawford HLS, Yok S, Lek D, Richards JS et al. High mobility, low access thwarts interventions among seasonal workers in the Greater Mekong Sub-region: lessons from the malaria containment project. *Malar J*. 2016;15(1):434. doi:10.1186/s12936-016-1491-3.
553. Population mobility and malaria. Geneva: World Health Organization; International Organization for Migration; 2017 (<http://apps.who.int/iris/handle/10665/255816>, accessed 3 April 2022).
554. Tatem AJ, Jia P, Ordanovich D, Falkner M, Huang Z, Howes R et al. The geography of imported malaria to non-endemic countries: a meta-analysis of nationally reported statistics. *Lancet Infect Dis*. 2017;17(1):98–107. doi:10.1016/S1473-3099(16)30326-7.
555. Rakprasit J, Nakamura K, Seino K, Morita A. Healthcare use for communicable diseases among migrant workers in comparison with Thai workers. *Ind Health*. 2017;55(1):67–75. doi:10.2486/indhealth.2016-0107.
556. Inkochasan M, Gopinath D, Vicario E, Lee A, Duigan P. Access to health care for migrants in the Greater Mekong Subregion: policies and legal frameworks and their impact on malaria control in the context of malaria elimination. *WHO South-East Asia J Public Health*. 2019;8(1):26–34. doi:10.4103/2224-3151.255346.
557. Molnarova S, Wolf S, Tenna M. Highland malaria at the Kiziba UNHCR refugee camps (1950 m.a.s.). *Clin Soc Work Health Interv*. 2016;7(3):19–24. doi:10.22359/cswhi_7_3_05.
558. Aschale Y, Mengist A, Bitew A, Kassie B, Talie A. Prevalence of malaria and associated risk factors among asymptomatic migrant laborers in West Armachiho District, Northwest Ethiopia. *Res Rep Trop Med*. 2018;9:95–101. doi:10.2147/RTM.S165260.
559. Camuset G, Lafarge S, Borgherini G, Gerber A, Poudroux N, Foucher A et al. Leprosy on Reunion Island, 2005–2013: situation and perspectives. *PLOS Negl Trop Dis*. 2016;10(4):e0004612. doi:10.1371/journal.pntd.0004612.
560. Ostera G, Blum J, Cornejo C, Burgula S, Jeun R, Bryan PE et al. Strongyloidiasis in Latin American immigrants: a pilot study. *J Helminthol*. 2017;91(2):262–6. doi:10.1017/S0022149X16000213.
561. Humphrey JM, Al-Absi ES, Hamdan MM, Okasha SS, Al-Trmanini DM, El-Dous HG et al. Dengue and chikungunya seroprevalence among Qatari nationals and immigrants residing in Qatar. *PLOS One*. 2019;14(1):e0211574. doi:10.1371/journal.pone.0211574.
562. Crawshaw AF, Pareek M, Were J, Schillinger S, Gorbacheva O, Wickramage KP et al. Infectious disease testing of UK-bound refugees: a population-based, cross-sectional study. *BMC Med*. 2018;16:143. doi:10.1186/s12916-018-1125-4.
563. Cooper CL, Read D, Vachon M-L, Conway B, Wong A, Ramji A et al. Hepatitis C virus infection characteristics and treatment outcomes in Canadian immigrants. *BMC Public Health*. 2020;20(1):1345. doi:10.1186/s12889-020-09464-0.
564. Klok S, van Dulm E, Boyd A, Generaal E, Eskander S, Joore IK et al. Hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV) infections among undocumented migrants and uninsured legal residents in the Netherlands: a cross-sectional study, 2018–2019. *PLOS One*. 2021;16(10):e0258932. doi:10.1371/journal.pone.0258932.

565. Kim JU, Ingiliz P, Shimakawa Y, Lemoine M. Improving care of migrants is key for viral hepatitis elimination in Europe. *Bull World Health Organ.* 2021;99(4):280–6. doi:10.2471/BLT.20.260919.
566. Nazareth J, Baggaley RF, Divall P, Pan D, Martin CA, Volik M et al. What is the evidence on existing national policies and guidelines for delivering effective tuberculosis, HIV and viral hepatitis services for refugees and migrants among Member States of the WHO European Region? Copenhagen: WHO Regional Office for Europe; 2021 (<https://apps.who.int/iris/handle/10665/352055/>, accessed 26 April 2022).
567. Nasrallah GK, Al-Absi ES, Ghandour R, Ali NH, Taleb S, Hedaya L et al. Seroprevalence of hepatitis E virus among blood donors in Qatar (2013-2016). *Transfusion.* 2017;57(7):1801–7. doi:10.1111/trf.14116.
568. Bizri AR, Fares J, Musharrafieh U. Infectious diseases in the era of refugees: hepatitis A outbreak in Lebanon. *Avicenna J Med.* 2018;8(4):147–52. doi:10.4103/ajm.AJM_130_18.
569. Al Mahtab M, Akbar SMF, Takahashi K, Adnan ABM, Alam MA, Noor-E-Alam SM et al. Alarming levels of hepatitis C virus prevalence among Rohingya refugees in Bangladesh: emergency national and international actions warranted. *Euroasian J Hepatogastroenterol.* 2019;9(1):55–6. doi:10.5005/jp-journals-10018-1297.
570. Ayele A, Abera D, Hailu M, Birhanu M, Desta K. Prevalence and associated risk factors for hepatitis B and C viruses among refugees in Gambella, Ethiopia. *BMC Public Health.* 2020;20(1):721. doi:10.1186/s12889-020-08893-1.
571. Robotin MC, Wallace J, Gallego G, George J. Hepatitis B and liver cancer: community awareness, knowledge and beliefs of Middle Eastern Migrants in Sydney, Australia. *Int J Environ Res Public Health.* 2021;18(16):8534. doi:10.3390/ijerph18168534.
572. Özbilgin A, Gencoglan G, Tunali V, Çavuş İ, Yıldırım A, Gündüz C et al. Refugees at the crossroads of continents: a molecular approach for cutaneous leishmaniasis among refugees in Turkey. *Acta Parasitol.* 2020;65(1):136–43. doi:10.2478/s11686-019-00139-4.
573. Amr ZS, Kanani K, Shadfan B, Hani RB. Cutaneous leishmaniasis among Syrian refugees in Jordan: a retrospective study. *Bull Soc Pathol Exot.* 2018;111(5):295–300. doi:10.3166/bspe-2019-0057.
574. de Lima Junior MM, Rodrigues GA, de Lima MR. Evaluation of emerging infectious disease and the importance of SINAN for epidemiological surveillance of Venezuelans immigrants in Brazil. *Braz J Infect Dis.* 2019;23(5):307–12. doi:10.1016/j.bjid.2019.07.006.
575. Aschale Y, Ayehu A, Worku L, Tesfa H, Birhanie M, Lemma W. Malaria-visceral leishmaniasis co-infection and associated factors among migrant laborers in West Armachiho district, North West Ethiopia: community based cross-sectional study. *BMC Infect Dis.* 2019;19(1):239. doi:10.1186/s12879-019-3865-y.
576. Zanjirani Farahani L, Mohebbali M, Akhoundi B, Saghafipour A, Kakooei Z. Seroepidemiological study on visceral leishmaniasis in an endemic focus of central Iran during 2017. *J Parasit Dis.* 2019;43(1):22–7. doi:10.1007/s12639-018-1049-0.
577. Abdalla NM, Abdelgani AM, Osman AA, Mohamed MN. Demographical and population dynamics impact on public health of cutaneous leishmaniasis in Al-Madinah Almonawra, Saudi Arabia. *Afr Health Sci.* 2019;19(3):2421–30. doi:10.4314/ahs.v19i3.16.
578. Alarfaj YY, Alghanim NI, Alkhalifah RH, Balghonaim MS, Ali MB. Incidence of cutaneous leishmaniasis in Al-Ahsa, Saudi Arabia from 2011 to 2013. *Indo Am J Pharm Sci.* 2019;6(1):801–7. doi:10.5281/zenodo.2537605.
579. Yentur Doni N, Gurses G, Dikme R, Aksoy M, Yildiz Zeyrek F, Simsek Z et al. Cutaneous leishmaniasis due to three *Leishmania* species among Syrian refugees in Sanliurfa, southeastern Turkey. *Acta Parasitol.* 2020;65(4):936–48. doi:10.2478/s11686-020-00227-w.
580. Lindner AK, Richter J, Gertler M, Nikolaus M, Equihua Martinez G, Müller K et al. Cutaneous leishmaniasis in refugees from Syria: complex cases in Berlin 2015–2020. *J Travel Med.* 2020;27(7):taaa161. doi:10.1093/jtm/taaa161.
581. Meymandi SK, Forsyth CJ, Soverow J, Hernandez S, Sanchez D, Montgomery SP et al. Prevalence of Chagas disease in the Latin American-born population of Los Angeles. *Clin Infect Dis.* 2017;64(9):1182–8. doi:10.1093/cid/cix064.
582. Basile L, Jansa JM, Carlier Y, Salamanca DD, Angheben A, Bartoloni A et al. Chagas disease in European countries: the challenge of a surveillance system. *Euro Surveill.* 2011;16(37):19968. doi:10.2807/ese.16.37.19968-en.
583. González Sanz M, De Sario M, García-Mingo D, Dawood N, Álvarez-Martínez MJ, Daly R et al. Chagas disease in the United Kingdom: a review of cases managed at the Hospital for Tropical Diseases London 1995–2018. The current state of detection of Chagas disease in the UK. *Travel Med Infect Dis.* 2020;36:101760. doi:10.1016/j.tmaid.2020.101760.
584. Aith FMA, Forsyth C, Shikanai-Yasuda MA. Chagas disease and healthcare rights in the Bolivian immigrant community of São Paulo, Brazil. *Trop Med Infect Dis.* 2020;5(2):62. doi:10.3390/tropicalmed5020062.
585. Luna EJ, Furucho CR, Silva RA, Wanderley DM, Carvalho NB, Satolo CG et al. Prevalence of *Trypanosoma cruzi* infection among Bolivian immigrants in the city of São Paulo, Brazil. *Mem Inst Oswaldo Cruz.* 2017;112(1):70–4. doi:10.1590/0074-02760160384.
586. Requena-Méndez A, Aldasoro E, Lazzari E, Sicuri E, Brown M, Moore DA et al. Prevalence of Chagas disease in Latin-American migrants living in Europe: a systematic review and meta-analysis. *PLOS Negl Trop Dis.* 2015;9(2):e0003540. doi:10.1371/journal.pntd.0003540.

587. Cobo F, Salas-Coronas J, Cabezas-Fernández MT, Vázquez-Villegas J, Cabeza-Barrera MI, Soriano-Pérez MJ. Infectious diseases in immigrant population related to the time of residence in Spain. *J Immigr Minor Health*. 2016;18(1):8–15. doi:10.1007/s10903-014-0141-5.
588. Romay-Barja M, Boquete T, Martínez O, Benito A, Blasco-Hernández T. Factors associated with Chagas screening among immigrants from an endemic country in Madrid, Spain. *PLOS One*. 2020;15(3):e0230120. doi:10.1371/journal.pone.0230120.
589. Vargas-Machuca R, Rojas-Dávila CE, Jiménez MM, Piscocoy-Magallanes CR, Razuri H, Ugaz ME. Situación nutricional de los niños migrantes venezolanos a su ingreso al Perú y las acciones emprendidas para proteger su salud y nutrición [Nutritional situation of Venezuelan migrant children upon entry into Peru and the actions taken to protect their health and nutrition]. *Rev Peru Med Exp Salud Publica*. 2019;36(3):504–10. doi:10.17843/rpmesp.2019.363.4676.
590. Mekonnen GK, Mengistie B, Sahilu G, Kloos H, Mulat W. Etiologies of diarrhea and drug susceptibility patterns of bacterial isolates among under-five year children in refugee camps in Gambella Region, Ethiopia: a case control study. *BMC Infect Dis*. 2019;19(1):1008. doi:10.1186/s12879-019-4599-6.
591. Kisera N, Luxemburger C, Tornieporth N, Otieno G, Inda J. A descriptive cross-sectional study of cholera at Kakuma and Kalobeyei refugee camps, Kenya in 2018. *Pan Afr Med J*. 2020;37:197. doi:10.11604/pamj.2020.37.197.24798.
592. Mekonnen GK, Alemu BM, Mulat W, Sahilu G, Kloos H. Risk factors for acute childhood diarrhea: a cross-sectional study comparing refugee camps and host communities in Gambella Region, Ethiopia. *Travel Med Infect Dis*. 2019;31:101385. doi:10.1016/j.tmaid.2019.02.003.
593. Watts NS, Mizinduko MM, Barnett ED, White LF, Hochberg NS. Association between parasitic infections and tuberculin skin test results in refugees. *Travel Med Infect Dis*. 2017;16:35–40. doi:10.1016/j.tmaid.2017.03.007.
594. Boughattas S, Behnke JM, Al-Sadeq D, Ismail A, Abu-Madi M. *Cryptosporidium* spp., prevalence, molecular characterisation and socio-demographic risk factors among immigrants in Qatar. *PLOS Negl Trop Dis*. 2019;13(10):e0007750. doi:10.1371/journal.pntd.0007750.
595. Chernet A, Kling K, Sydow V, Kuenzli E, Hatz C, Utzinger J et al. Accuracy of diagnostic tests for *Schistosoma mansoni* infection in asymptomatic Eritrean refugees: serology and point-of-care circulating cathodic antigen against stool microscopy. *Clin Infect Dis*. 2017;65(4):568–74. doi:10.1093/cid/cix366.
596. Global leprosy strategy 2016–2020: accelerating towards a leprosy-free world. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/208824>, accessed 3 April 2022).
597. Muga GO, Onyango-Ouma W, Sang R, Affognon H. Indigenous knowledge of Rift Valley fever among Somali nomadic pastoralists and its implications on public health delivery approaches in Ijara sub-County, north eastern Kenya. *PLOS Negl Trop Dis*. 2021;15(2):e0009166. doi:10.1371/journal.pntd.0009166.
598. Sanders AM, Abdalla Z, Elshafie BE, Nute AW, Long EF, Aziz N et al. Prevalence of trachoma within refugee camps serving South Sudanese refugees in White Nile State, Sudan: results from population-based surveys. *PLOS Negl Trop Dis*. 2019;13(6):e0007491. doi:10.1371/journal.pntd.0007491.
599. Mathur R, Rentsch CT, Morton CE, Hulme WJ, Schultze A, MacKenna B et al. Ethnic differences in SARS-CoV-2 infection and COVID-19-related hospitalisation, intensive care unit admission, and death in 17 million adults in England: an observational cohort study using the OpenSAFELY platform. *Lancet*. 2021;397(10286):1711–24. doi:10.1016/S0140-6736(21)00634-6.
600. Fabiani M, Mateo-Urdiales A, Andrianou X, Bella A, Del Manso M, Bellino S et al. Epidemiological characteristics of COVID-19 cases in non-Italian nationals notified to the Italian surveillance system. *Eur J Public Health*. 2021;31:37–44. doi:10.1093/eurpub/ckaa249.
601. Giorgi Rossi P, Marino M, Formisano D, Venturelli F, Vicentini M, Grilli R et al. Characteristics and outcomes of a cohort of COVID-19 patients in the Province of Reggio Emilia, Italy. *PLOS One*. 2020;15(8):e0238281. doi:10.1371/journal.pone.0238281.
602. COVID-19-epidemien: kunnskap, situasjon, prognose, risiko og respons i Norge etter uke 51. Oslo: Norwegian Institute of Public Health; 2020 (in Norwegian; <https://www.fhi.no/contentassets/c9e459cd7cc24991810a0d28d7803bd0/vedlegg/covid-19-epidemien-kunnskap-situasjon-prognose-risiko-og-respons-i-norge-etter-uke-51-publisert-21.12.2020.pdf>, accessed 4 May 2022).
603. Demographic description of confirmed COVID-19 cases in Sweden from 13 March to 7 May. Stockholm: Swedish Public Health Agency; 2020 (in Swedish; <https://www.folkhalsomyndigheten.se/contentassets/d6538f6c359e448ba39993a41e1116e7/covid-19-demografisk-beskrivning-bekraftade-covid-19-fall.pdf>, accessed 4 May 2022).
604. COVID-19 og herkomst - opdateret fokusrapport. Copenhagen: Statens Serum Institut; 2020 (in Danish; <https://files.ssi.dk/COVID19-og-herkomst-oktober-2020>, accessed 4 May 2022).
605. Hayward SE, Deal A, Cheng C, Crawshaw A, Orcutt M, Vandrevalla TF et al. Clinical outcomes and risk factors for COVID-19 among migrant populations in high-income countries: a systematic review. *J Migr Health*. 2021;3:100041. doi:10.1016/j.jmh.2021.100041.

606. Pan H, Fokkema T, Switsers L, Dury S, Hoens S, De Donder L. Older Chinese migrants in coronavirus pandemic: exploring risk and protective factors to increased loneliness. *Eur J Ageing*. 2021;18(2):207–15. doi:10.1007/s10433-021-00625-7.
607. A claim to dignity: ageing on the move. New York: Office of the United Nations High Commissioner for Refugees; 2021 (<https://www.acnur.org/60ad9f544>, accessed 21 April 2022).
608. Reducing COVID-19 transmission and strengthening vaccine uptake among migrant populations in the EU/EEA. Stockholm: European Centre for Disease Prevention and Control; 2021 (<https://www.ecdc.europa.eu/sites/default/files/documents/covid-19-reducing-transmission-and-strengthening-vaccine-uptake-in-migrants.pdf>, accessed 3 April 2022).
609. Guidance on infection prevention and control of COVID-19 in migrant and refugee reception and detention centres in the EU/EEA and the UK. Stockholm: European Centre for Disease Prevention and Control; 2020 (<https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-guidance-refugee-asylum-seekers-migrants-EU.pdf>, accessed 3 April 2022).
610. Epidemiological surveillance in points of care for refugees/migrants: weekly report: week 19/2020 (04/05 to 10/05). Athens: Ministry of Health of Greece; 2020 (<https://eody.gov.gr/wp-content/uploads/2020/05/Surveillance-refugees-weekly-EN-2020-19.pdf>, accessed 3 April 2022).
611. Preparedness, prevention and control of coronavirus disease (COVID-19) for refugees and migrants in non-camp settings: interim guidance, 17 April 2020. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/331777>, accessed 3 April 2022).
612. Sisti LG, Di Napoli A, Petrelli A, Rossi A, Diodati A, Menghini M et al. COVID-19 impact in the Italian reception system for migrants during the nationwide lockdown: a national observational study. *Int J Environ Res Public Health*. 2021;18(23):12380. doi:10.3390/ijerph182312380.
613. Hamadah H, Alahmad B, Behbehani M, Al-Youha S, Almazeedi S, Al-Haddad M et al. COVID-19 clinical outcomes and nationality: results from a nationwide registry in Kuwait. *BMC Public Health*. 2020;20(1):1384. doi:10.1186/s12889-020-09490-y.
614. Tan IB, Tan C, Hsu LY, Dan YY, Aw A, Cook AR et al. Prevalence and outcomes of SARS-CoV-2 infection among migrant workers in Singapore. *JAMA*. 2021;325(6):584–5. doi:10.1001/jama.2020.24071.
615. Zhang M, Gurung A, Anglewicz P, Yun K. COVID-19 and immigrant essential workers: Bhutanese and Burmese refugees in the United States. *Public Health Rep*. 2021;136(1):117–23. doi:10.1177/0033354920971720.
616. COVID-19 dashboard. WHO Cox's Bazar data hub. Geneva: World Health Organization; 2022 (<https://cxb-epi.netlify.app/post/covid-19-dashboard/>, accessed 3 April 2022).
617. Least protected, most affected: migrants and refugees facing extraordinary risks during the COVID-19 pandemic. Geneva: International Federation of Red Cross and Red Crescent Societies; 2021 (<https://www.ifrc.org/document/least-protected-most-affected-migrants-and-refugees-facing-extraordinary-risks-during>, accessed 3 April 2022).
618. Åhlberg M. No viable alternatives: social (in)security and risk of labour exploitation during COVID-19. London: Independent Workers Union of Great Britain and United Voices of the World; 2021 (https://www.labourexploitation.org/sites/default/files/publications/Full%20report_Social%20Insecurity_Final.pdf, accessed 3 April 2022).
619. The impact of the COVID-19 pandemic on jobs and incomes in G20 economies. Geneva: International Labour Organization; 2020 (https://www.ilo.org/wcmsp5/groups/public/---dgreports/---cabinet/documents/publication/wcms_756331.pdf, accessed 3 April 2022).
620. Refugees and migrants in times of COVID-19: mapping trends of public health and migration policies and practices. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/handle/10665/341843>, accessed 3 April 2022).
621. Hajjar MS, Abu-Sittah GS. The multidimensional burden of COVID-19 on Syrian refugees in Lebanon. *J Glob Health*. 2021;11:05003. doi:10.7189/jogh.11.05003.
622. Benton M, Batalova J, Davidoff-Gore S, Schmidt T. COVID-19 and the state of global mobility in 2020. Geneva: International Organization for Migration; 2021 (<https://publications.iom.int/books/covid-19-and-state-global-mobility-2020>, accessed 3 April 2022).
623. Kumar K, Mehra A, Sahoo S, Nehra R, Grover S. The psychological impact of COVID-19 pandemic and lockdown on the migrant workers: a cross-sectional survey. *Asian J Psychiatry*. 2020;53:102252. doi:10.1016/j.ajp.2020.102252.
624. Mukumbang FC, Ambe AN, Adebisi BO. Unspoken inequality: how COVID-19 has exacerbated existing vulnerabilities of asylum-seekers, refugees, and undocumented migrants in South Africa. *Int J Equity Health*. 2020;19(1):141. doi:10.1186/s12939-020-01259-4.
625. ApartTogether survey: preliminary overview of refugees and migrants self-reported impact of COVID-19. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/337931>, accessed 3 April 2022).
626. From insights to action: gender equality in the wake of COVID-19. New York: United Nations Entity for Gender Equality and the Empowerment of Women (UN Women); 2020 (<https://www.unwomen.org/en/digital-library/publications/2020/09/gender-equality-in-the-wake-of-covid-19>, accessed 3 April 2022).

627. The impact of COVID-19 on refugee and migrant women in Tunisia. Mixed Migration Centre; 2021 (<https://reliefweb.int/report/tunisia/impact-covid-19-refugee-and-migrant-women-tunisia>, accessed 3 April 2022).
628. Impact of COVID-19 on gender-based violence: refugee and migrant response. New York: United Nations Children's Fund; 2021 (<https://www.unicef.org/eca/media/15751/file>, accessed 3 April 2022).
629. COVID-19 pandemic worsening gender inequalities for refugee women and girls. Geneva: Office of the United Nations High Commissioner for Refugees; 2021 (<https://www.unhcr.org/news/press/2021/3/604524674/covid-19-pandemic-worsening-gender-inequalities-refugee-women-girls.html>, accessed 3 April 2022).
630. A web of insecurity: gendered risks and vulnerabilities for children on the move during the COVID-19 pandemic. New York: United Nations Children's Fund; 2021 (<https://data.unicef.org/resources/a-web-of-insecurity-gendered-risks-vulnerabilities-children-on-the-move-covid-19/>, accessed 3 April 2022).
631. 10 million additional girls at risk of child marriage due to COVID-19. New York: United Nations Children's Fund; 2021 (<https://www.unicef.org/press-releases/10-million-additional-girls-risk-child-marriage-due-covid-19>, accessed 25 June 2022).
632. Lusambili AM, Martini M, Abdirahman F, Asante A, Ochieng S, Guni JN et al. "We have a lot of home deliveries." A qualitative study on the impact of COVID-19 on access to and utilisation of reproductive, maternal, newborn and child health care among refugee women in urban Eastleigh, Kenya. *J Migr Health*. 2020;2:100025. doi:10.1016/j.jmh.2020.100025.
633. Landini C. Child marriage in the context of COVID-19: analysis of trends, programming and alternative approaches in the Middle East and North Africa. New York: United Nations Population Fund; 2021 (<https://resourcecentre.savethechildren.net/document/child-marriage-context-covid-19-analysis-trends-programming-and-alternative-approaches/>, accessed 3 April 2022).
634. Ubeysekara I. Sri Lankan women migrant workers: more risks, more trafficking during COVID-19. Colombo: Helvetas Sri Lanka; 2020 (<https://www.shareweb.ch/site/Migration/focus-area/Pages/Sri-Lankan-women-migrant-workers--more-risks%2C-more-trafficking-during-COVID-19.aspx>, accessed 3 April 2022).
635. Gender-based violence risk assessment Azraq Camp. Geneva: Office of the United Nations High Commissioner for Refugees; 2021 (https://reliefweb.int/sites/reliefweb.int/files/resources/DJ3_SGBV%20Risk%20Assessment_Azraq_Final.pdf, accessed 3 April 2022).
636. Bukuluki P, Mwenyango H, Kato F, Kyamulabi A, Bagabo A. Chapter 4 – The psychosocial effect of COVID-19 on urban refugees: narratives from Congolese refugees living in Kampala. In: Moustafa AA, editor. *Mental health effects of COVID-19*. New York: Academic Press; 2021 (<https://www.sciencedirect.com/science/article/pii/B9780128242896000064>, accessed 3 April 2022).
637. Bukuluki P, Mwenyango H, Katongole SP, Sidhva D, Palattiyil G. The socio-economic and psychosocial impact of COVID-19 pandemic on urban refugees in Uganda. *Soc Sci Humanit Open*. 2020;2(1):100045. doi:10.1016/j.ssaho.2020.100045.
638. Kizilhan JI, Noll-Hussong M. Psychological impact of COVID-19 in a refugee camp in Iraq. *Psychiatry Clin Neurosci*. 2020;74(12):659–60. doi:10.1111/pcn.13142.
639. Rees S, Fisher J. COVID-19 and the mental health of people from refugee backgrounds. *Int J Health Serv*. 2020;50(4):415–17. doi:10.1177/0020731420942475.
640. The impact of COVID-19 on mental, neurological and substance use services: results of a rapid assessment. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/335838>, accessed 3 April 2022).
641. Manirambona E, Uwizeyimana T, Uwiringiyimana E, Reddy H. Impact of the COVID-19 pandemic on the food rations of refugees in Rwanda. *Int J Equity Health*. 2021;20(1):107. doi:10.1186/s12939-021-01450-1.
642. Karim MR, Islam MT, Talukder B. COVID-19's impacts on migrant workers from Bangladesh: in search of policy intervention. *World Dev*. 2021;136:105123. doi:10.1016/j.worlddev.2020.105123.
643. Chowdhury MB, Chakraborty M. The impact of COVID-19 on the migrant workers and remittances flow to Bangladesh. *South Asian Surv*. 2021;28(1):38–56. doi:10.1177/0971523121995365.
644. Alemi Q, Stempel C, Siddiq H, Kim E. Refugees and COVID-19: achieving a comprehensive public health response. *Bull World Health Organ*. 2020;98(8):510. doi:10.2471/BLT.20.271080.
645. IOM Myanmar COVID-19 response situation report 3. Geneva: International Organization for Migration; 2020 (<https://reliefweb.int/report/myanmar/iom-myanmar-covid-19-response-situation-report-3-1-may-2020>, accessed 3 April 2022).
646. Chung RY-N, Li MM. Anti-Chinese sentiment during the 2019-nCoV outbreak. *Lancet*. 2020;395(10225):686–7. doi:10.1016/S0140-6736(20)30358-5.
647. Devakumar D, Shannon G, Bhopal SS, Abubakar I. Racism and discrimination in COVID-19 responses. *Lancet*. 2020;395(10231):1194. doi:10.1016/S0140-6736(20)30792-3.

648. Adhanom Ghebreyesus T. WHO Director-General's opening remarks at the media briefing on COVID-19. Geneva: World Health Organization; 2020 (<https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>, accessed 3 April 2022).
649. Connor P. More than nine-in-ten people worldwide live in countries with travel restrictions amid COVID-19. Washington (DC): Pew Research Center; 2020 (<https://www.pewresearch.org/fact-tank/2020/04/01/more-than-nine-in-ten-people-worldwide-live-in-countries-with-travel-restrictions-amid-covid-19/>, accessed 3 April 2022).
650. International migration 2020 highlights. New York: United Nations Department of Economic and Social Affairs, Population Division; 2021 (<https://www.un.org/en/desa/international-migration-2020-highlights>, accessed 21 April 2022).
651. International Migration Outlook 2020. Paris: Organisation for Economic Co-operation and Development; 2020 (https://www.oecd-ilibrary.org/social-issues-migration-health/international-migration-outlook-2021_29f23e9d-en, accessed 3 April 2022).
652. 2020 annual international migration and forced displacement trends and policies report to the G20. Paris: Organisation for Economic Co-operation and Development; 2021 (<https://www.oecd.org/els/mig/FINAL-2020-OECD-ILO-UNHCR-IOM-G20-report.pdf>, accessed 3 April 2022).
653. COVID-19 impact on stranded migrants Return and Reintegration Platform. Geneva: International Organization for Migration; 2020 (<https://returnandreintegration.iom.int/en/resources/report/covid-19-impact-stranded-migrants>, accessed 3 April 2022).
654. Labor migration in Asia: impacts of the COVID-19 crisis and the post-pandemic future. Paris: Organisation for Economic Co-operation and Development; 2021 (https://www.oecd-ilibrary.org/social-issues-migration-health/labor-migration-in-asia_a5d6e6aa-en, accessed 3 April 2022).
655. Laczko F. COVID-19 and migration in 2020: five key trends. *Migr Policy Pract.* 2021;XI(1):5–9 (<https://publications.iom.int/system/files/pdf/mpp-44.pdf>, accessed 3 April 2022).
656. Greenaway C, Hargreaves S, Barkati S, Coyle CM, Gobbi F, Veizis A et al. COVID-19: exposing and addressing health disparities among ethnic minorities and migrants. *J Travel Med.* 2020;27(7):taaa113. doi:10.1093/jtm/taaa113.
657. Redditt V, Wright V, Rashid M, Male R, Bogoch I. Outbreak of SARS-CoV-2 infection at a large refugee shelter in Toronto, April 2020: a clinical and epidemiologic descriptive analysis. *CMAJ Open.* 2020;8(4):E819–24. doi:10.9778/cmajo.20200165.
658. Subbaraman N. "Distancing is impossible": refugee camps race to avert coronavirus catastrophe. *Nature.* 2020;581(7806):18. doi:10.1038/d41586-020-01219-6.
659. Bozorgmehr K, Hintermeier M, Razum O, Mohsenpour A, Biddle L, Oertelt-Prigione S et al. SARS-CoV-2 in aufnahmeeinrichtungen und gemeinschaftsunterkünften für geflüchtete: epidemiologische und normativ-rechtliche aspekte. Competence Network Public Health COVID-19; 2020 (in German; https://www.public-health-covid19.de/images/2020/Ergebnisse/FactSheet_PHNetwork-COVID19_Aufnahmeeinrichtungen_v1_inkl_ANNEX.pdf, accessed 3 April 2022).
660. Gilman RT, Mahroof-Shaffi S, Harkensee C, Chamberlain AT. Modelling interventions to control COVID-19 outbreaks in a refugee camp. *BMJ Glob Health.* 2020;5(12):e003727. doi:10.1136/bmjgh-2020-003727.
661. Easton-Calabria E. A restriction of responsibility-sharing: exploring the impact of COVID-19 on the global compact on refugees. Copenhagen: Danish Refugee Council; 2020 (<https://reliefweb.int/report/world/restriction-responsibility-sharing-exploring-impact-covid-19-global-compact-refugees>, accessed 3 April 2022).
662. Alkhamis MA, Youha SA, Khajah MM, Haider NB, Alhardan S, Nabeel A et al. Spatiotemporal dynamics of the COVID-19 pandemic in the State of Kuwait. *Int J Infect Dis.* 2020;98:153–60. doi:10.1016/j.ijid.2020.06.078.
663. Measures to contain the COVID-19 outbreak in migrant worker dormitories. Singapore Ministry of Health; 2020 (<https://www.moh.gov.sg/news-highlights/details/measures-to-contain-the-covid-19-outbreak-in-migrant-worker-dormitories>, accessed 3 April 2022).
664. Chersich MF, Gray G, Fairlie L, Eichbaum Q, Mayhew S, Allwood B et al. COVID-19 in Africa: care and protection for frontline healthcare workers. *Global Health.* 2020;16(1):46. doi:10.1186/s12992-020-00574-3.
665. Reid A, Ronda-Perez E, Schenker MB. Migrant workers, essential work, and COVID-19. *Am J Ind Med.* 2021;64(2):73–7. doi:10.1002/ajim.23209.
666. Editorial. The plight of essential workers during the COVID-19 pandemic. *Lancet.* 2020;395(10237):1587. doi:10.1016/S0140-6736(20)31200-9.
667. Kerwin D, Warren R. US foreign-born workers in the global pandemic: essential and marginalized. *J Migr Hum Secur.* 2020;8(3):282–300. doi:10.1177/2331502420952752.
668. Migration data relevant for the COVID-19 pandemic. Migration data portal. Global Migration Data Analysis Centre; 2021 (<https://www.migrationdataportal.org/themes/migration-data-relevant-covid-19-pandemic>, accessed 3 April 2022).
669. Contribution of migrant doctors and nurses to tackling COVID-19 crisis in OECD countries. Paris: Organisation for Economic Development and Co-operation; 2020 (https://www.oecd-ilibrary.org/social-issues-migration-health/contribution-of-migrant-doctors-and-nurses-to-tackling-covid-19-crisis-in-oecd-countries_2f7bace2-en, accessed 21 April 2022).

670. Mutambudzi M, Niedzwiedz C, Macdonald EB, Leyland A, Mair F, Anderson J et al. Occupation and risk of severe COVID-19: prospective cohort study of 120 075 UK Biobank participants. *Occup Environ Med.* 2020;78(5):307–14. doi:10.1136/oemed-2020-106731.
671. Gholizadeh P, Sanogo M, Oumarou A, Mohamed MN, Cissoko Y, Sow MS et al. Fighting COVID-19 in west Africa after experiencing the Ebola epidemic. *Health Promot Perspect.* 2021;11(1):5–11. doi:10.34172/hpp.2021.02.
672. Onoma AK. The making of dangerous communities: the "Peul-Fouta" in Ebola-weary Senegal. *Afr Spectr.* 2017;52(2):29–51. doi:10.1177/000203971705200202.
673. Onoma AK. Xenophobia's contours during an Ebola epidemic: proximity and the targeting of Peul migrants in Senegal. *Afr Stud Rev.* 2020;63(2):353–74. doi:10.1017/asr.2019.38.
674. Al-Ghalib Alsharif FL, Malit FT. Migration and the COVID-19 pandemic in the Gulf Report No. 15. Bonn: Konrad Adenauer Stiftung; 2020 (<https://www.kas.de/documents/286298/8668222/Policy+Report+No+15+Migration+and+The+COVID-19+Pandemic+in+the+Gulf.pdf/87dd88bd-ed47-41c7-be23-48c5a5eb8d7c?version=1.0&t=1603448109241>, accessed 3 April 2022).
675. Alsharif F. Undocumented migrants in Saudi Arabia: COVID-19 and amnesty reforms. *Int Migr.* 2022;60(1):188–204. doi:10.1111/imig.12838.
676. Rahman MM. COVID-19 and migrants in the GCC States: challenges, responses and key lessons. Doha: Qatar University Gulf Studies Center; 2021 (Working Paper 1; http://www.qu.edu.qa/static_file/qu/research/Gulf%20Studies/documents/Working%20paper%201%20-%20Mizanur%20Rahman%20-%202021.pdf, accessed 26 April 2022).
677. WHO Country Office: Libya: annual report 2020. Cairo: WHO Regional Office for the Eastern Mediterranean; 2021 (<https://applications.emro.who.int/docs/9789290225959-eng.pdf?ua=1>, accessed 26 April 2022).
678. Riggiozzi P, Grugel J, Cintra N. Perspective on migrants' right to health in Latin America during COVID-19. London: University College London–Lancet Commission on Migration and Health; 2020 (https://1bec58c3-8dcb-46b0-bb2a-fd4addf0b29a.filesusr.com/ugd/188e74_543cbb0400824084abcea99479dfa124.pdf, accessed 3 April 2022).
679. Fernández-Niño JA, Cubillos-Novella A, Bojórquez L, Rodríguez M. Recommendations for the response against COVID-19 in migratory contexts under a closed border: the case of Colombia. *Biomedica.* 2020;40:68–72. doi:10.7705/biomedica.5512.
680. Remote assessment COVID-19: Venezuelan migrants in Colombia, Ecuador and Peru. In: ReliefWeb [website]. New York: United Nations Office for the Coordination of Humanitarian Affairs; 2020 (<https://reliefweb.int/report/colombia/remote-assessment-covid-19-venezuelan-migrants-colombia-ecuador-and-peru>, accessed 29 March 2022).
681. Del Monte JA, Irwin RM. Personas migrantes en Tijuana frente al COVID-19: impactos y consecuencias de las medidas sanitarias desde la perspectiva de los actores [Migrants in Tijuana facing COVID-19: impacts and consequences of health measures from the perspective of the actors]. Tijuana: Colegio de la Frontera Norte; 2020 (in Spanish; https://www.colef.mx/wp-content/uploads/2020/06/8_Personasmigrantes.pdf, accessed 3 April 2022).
682. Ulrich MR, Crosby SS. Title 42, asylum, and politicising public health. *Lancet Reg Health - Am.* 2022;7:100124. doi:10.1016/j.lana.2021.100124.
683. Bojorquez-Chapela I, Infante C, Larrea-Schiavon S, Vieitez-Martinez I. In-transit migrants and asylum seekers: inclusion gaps in Mexico's COVID-19 health policy response. *Health Aff (Millwood).* 2021;40(7):1154–61. doi:10.1377/hlthaff.2021.00085.
684. Alabdulla M, Reagu SM, Al-Khal A, Elzain M, Jones RM. COVID-19 vaccine hesitancy and attitudes in Qatar: a national cross-sectional survey of a migrant-majority population. *Influenza Other Respir Viruses.* 2021;15(3):361–70. doi:10.1111/irv.12847.
685. Crawshaw AF, Deal A, Rustage K, Forster AS, Campos-Matos I, Vandrevale T et al. What must be done to tackle vaccine hesitancy and barriers to COVID-19 vaccination in migrants? *J Travel Med.* 2021;28(4):taab048. doi:10.1093/jtm/taab048.
686. Priebe Rocha L, Rose R, Hoch A, Soares C, Fernandes A, Galvão H et al. The impact of the COVID-19 pandemic on the Brazilian immigrant community in the U.S: results from a qualitative study. *Int J Environ Res Public Health.* 2021;18(7):3355. doi:10.3390/ijerph18073355.
687. COVID-19 situation reports. Cairo: WHO Regional Office for the Eastern Mediterranean; 2020 (<http://www.emro.who.int/health-topics/corona-virus/situation-reports.html>, accessed 3 April 2022).
688. Knipper M, Sedas AC, Keshavjee S, Abbara A, Almhawish N, Alashawi H et al. The need for protecting and enhancing TB health policies and services for forcibly displaced and migrant populations during the ongoing COVID-19 pandemic. *Int J Infect Dis.* 2021;113(suppl 1):S22–7. doi:10.1016/j.ijid.2021.03.047.
689. The COVID-19 vaccines and undocumented migrants: what are European countries doing? Brussels: Platform for International Cooperation on Undocumented Migrants (PICUM); 2021 (<https://picum.org/covid-19-vaccines-undocumented-migrants-europe/>, accessed 3 April 2022).

690. Spiegel PB, Hering H, Paik E, Schilperoord M. Conflict-affected displaced persons need to benefit more from HIV and malaria national strategic plans and Global Fund grants. *Confl Health*. 2010;4(1):2. doi:10.1186/1752-1505-4-2.
691. WHO SAGE roadmap for prioritizing uses of COVID-19 vaccines. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/rest/bitstreams/1406385/retrieve>, accessed 3 April 2022).
692. Sköld N. UNHCR calls for inclusion of refugees in vaccination plans. UNHCR Nordic and Baltic Countries. Geneva: Office of the United Nations High Commissioner for Refugees; 2021 (<https://www.unhcr.org/neu/51787-unhcr-calls-for-inclusion-of-refugees-in-vaccination-plans.html>, accessed 3 April 2022).
693. UNHCR COVID-19 response [website]. Geneva: Office of the United Nations High Commissioner for Refugees; 2021 (https://reporting.unhcr.org/document/925#_ga=2.174892007.43253892.1639994982-1175060295.1621948336, accessed 3 April 2022).
694. Wickramage K, Gostin LO, Friedman E, Prakongsai P, Suphanchaimat R, Hui C et al. Missing: where are the migrants in pandemic influenza preparedness plans? *Health Hum Rights*. 2018;20(1):251–8. PMID:30008567.
695. The COVAX Humanitarian Buffer. New York: Inter-Agency Standing Committee; 2022 (<https://interagencystandingcommittee.org/inter-agency-standing-committee/covax-humanitarian-buffer>, accessed 25 June 2022).
696. Over 1.6 million COVID-19 vaccines delivered to Islamic Republic of Iran to increase protection of Afghan refugees. Tehran: United Nations Children's Fund; 2021 (<http://www.emro.who.int/iran/news/over-16-million-donated-covid-19-vaccines-land-in-islamic-republic-of-iran-to-increase-protection-of-afghan-refugees.html>, accessed 25 June 2022).



Although health is at the core of any ministry of health, the multifaceted nature of health and migration necessitates working not only across government agencies but also with many other national sectors to ensure effective and quality health services for all refugees and migrants. It also entails adopting a regional perspective, connecting migrants to health services along migration routes within and between countries. As a Minister, I also need to consider three specific dimensions: the long term of infrastructure, the medium term of policy and the short term of politics.

Migration can occur regularly yet go unnoticed over decades but can also be unexpected and rapid as a result of major weather events, outbreak of conflict or war, or ethnic cleansing. All can displace tens of thousands in a short timespan, which places great stress on host health systems.

This report demonstrates that the most efficient way to meet the health needs of refugees and migrants in the short, medium and long term is by integrated health systems and by including refugees and migrants within systems that serve the host communities. In spite of the significant resources and technical improvements this may require, a more inclusive health system has proven to be hugely beneficial for all, refugees, migrants and host communities alike. To make this happen, those in charge need to work in synergy with other sectors of government and society.

Midori de Habich,
Former Minister of Health, Peru



A nurse at a Severe Acute Respiratory Infection Isolation and Treatment Center (SARI ITC) in Cox's Bazar, Bangladesh, supporting COVID-19 preparedness and response for vulnerable Rohingya refugees and host communities. © WHO / Blink Media – Fabeha Monir

4.1 Introduction

This chapter is structured according to the six building blocks of health systems defined by WHO: service delivery; the health workforce; access to medical products, vaccines and technologies; HIS; financing; and leadership and governance (Fig. 4.1). These building blocks are used to describe opportunities and challenges for a health system that is sensitive to the needs of refugees and migrants (1), in line with UHC, including PHC. As described in the 2010 global consultation on migrant health, "sensitive health systems and programmes" seek to systematically integrate the needs of refugees and migrants "into all aspects of health services financing, policy, planning, implementation, and evaluation" (2). For health systems to be sensitive to the needs of refugees and migrants, these populations need to be included in the system not only as patients but also as providers, decision-makers and facilitators. Moreover, making health systems sensitive to the needs of refugees and migrants is part of the process of health systems strengthening, which also benefits the host population.



Aerial view of the entrance of the new site of Moria reception and identification centre for asylum seekers and refugees on Lesbos, Greece, in September 2020. It replaced the previous centre that burned down in a catastrophic fire. © WHO

Fig. 4.1. WHO health systems building blocks applied to refugee and migrant health

Source: Adapted with permission from Legido-Quigley et al. (1).

4.2 Service delivery

- Refugees and migrants face many of the same barriers in accessing health services as the local population, although these may be intensified by their migratory status.
- The most common barriers include institutional and administrative, language and cultural, provider discrimination, transportation and financial factors. Direct and indirect health costs also present major barriers.
- Several regions report a lack of health services tailored to the particular needs of refugees and migrants.

Good-quality health services – those that deliver effective, safe, personal and non-personal health interventions to those who need them, when and where needed, with minimum waste of resources – are integral to achieving UHC. Strengthening health service delivery is key in ensuring better health outcomes for all, including refugee and migrant populations, whether in camps, communities, detention centres or elsewhere. Improving the health and well-being of refugees and migrants ultimately means ensuring they have access to health services and addressing barriers to their use. This section also highlights good practices and the models for service delivery required to meet the health needs of refugee and migrant health across regions.

4.2.1 Common barriers

Refugees and migrants may face many of the same barriers in accessing health services as the local population, including cost, proximity and general gaps in the health systems. However, they also face barriers specific to their migratory status, or limited recognition of their status

(1,3,4). Although the use of health services varies significantly across and within regions, by types of service and by migrant group, thematic barriers are generally similar across regions and include institutional or administrative, language, cultural, discrimination and transport barriers.

Institutional barriers. Navigating an unfamiliar health system in another country is challenging for refugees and migrants, who may not be able to access or understand coverage and registration instructions. This is exacerbated by, for example, health policies that are not inclusive of refugees and migrants and inadequate training of the health care professionals who interact with refugee and migrant populations. For example, studies in sub-Saharan African countries highlighted administrative and organizational barriers, such as a lack of proper paperwork or documentation (5). Similarly, lack of awareness of health system processes and their navigation, as well as a low level of health literacy, are notable barriers that increase difficulties in accessing health services. An example is the lack of awareness among some refugees and migrants as to when and how to seek primary or preventive care services. A qualitative study with sub-Saharan African migrant women

For health systems to be sensitive to the needs of refugees and migrants, these populations need to be included in the system not only as patients but also as providers, decision-makers and facilitators.

in the Basque Country, Spain, revealed that the perception of institutional barriers was compounded by other major barriers to access. These included difficulties in fulfilling the legal conditions for access, a lack of documentation, poor communication with health centre staff and perceptions of negative staff attitudes or stereotypes (6). A qualitative study with asylum seekers in Denmark found that unfamiliarity with the health system, combined with interpersonal miscommunication and perceived cultural insensitivity among health professionals, undermined trust in the health system and reduced their motivation to seek health services (7). A qualitative study with Syrian refugees in Jordan showed that given the complexity and fragmentation of care (i.e. across government, NGO and private services), refugees faced barriers in access to health services (8). Many of these barriers are created or exacerbated, instead of addressed, by policies and practices that do not include refugees and migrants. This is discussed further in section 4.7.

Language and communication barriers.

Language barriers when communicating with health service providers are a widespread problem across WHO regions for refugees and various types of migrants (9–21). For example, studies in the WHO South-East Asia Region noted that language influenced access to health services among refugees and migrants; communication difficulties and misunderstandings during medical treatment were reported as a significant barrier to seeking health services (16,22). In the United States, Spanish-speaking patients with poor English-language skills were less likely than English speakers to receive an appointment that matched their needs, especially in emerging destinations within the country (17). In Switzerland, more than 90% of the 599 PHC providers in a nationwide cross-sectional study reported facing language barriers with

their patients at least once per year, and 30% reported that this occurred once per week (23). In Kenya, providers of SGBV-related health services struggled to communicate directly with refugees, which had negative effects on service provision; health care providers reported a need for skills in relevant languages or sign language, as well as for access to interpreters (10). Refugees with visual or hearing impairments or other disabilities faced reduced access to the health system, and may even have been excluded from health system research and data collection, according to research from the WHO African and European regions. Improving this would require participatory design as well as tools such as personal assistants, sign language, Braille documents and the creation of supporter roles for the process (24,25).

Cultural barriers. In addition to language barriers, miscommunication may be caused by cultural barriers. For example, health providers in industrialized countries may mistakenly conclude that refugees and migrants from developing countries have low levels of health literacy, when in fact the differences are cultural (26). For example, a study based in the United States concluded that African-born women were three times less likely to have attended a clinic for a cervical smear test in the past three years than African-American women born in the United States, highlighting the need for further research on educational and cultural aspects of care (27). Providing culturally sensitive and adaptive care for refugees and migrants is especially important in SRH, for SGBV survivors (28–31), and for mental health and psychosocial support services (32–36), areas in which sensitivities or stigma exist. In a study conducted in Italy, the lack of cultural mediators and interpreters was reported to contribute to the communication barriers faced by refugees at service points; many refugees, including survivors of sexual violence, cited this as having deterred them from accessing care (31).

Evidence on acceptable low-intensity group psychological interventions for Syrian refugees indicated that previously recommended relaxation techniques, such as yoga, should be replaced with more culturally appropriate activities, such as listening to music or prayer (34).

Discrimination. Discrimination by health providers towards refugees and migrants, or a lack of sensitivity from other personnel within the health system, is reported as a key barrier to good-quality and acceptable care, as well as to health-seeking behaviour across regions (3,13,36–39). In two countries in the WHO Region of the Americas, refugees and migrants reported being dissatisfied with the delivery of health services by providers during medical encounters; the reasons reported included miscommunication as a result of cultural and language gaps, discrimination, lack of trust, dissatisfaction regarding recommended treatments or referrals to specialists, and dissatisfaction related to short, impersonal appointments (40,41). In many countries in the WHO Region of the Americas (38,42,43) and WHO European Region (39,44), refugees and migrants experienced discrimination from health professionals who were not aware of, doubted or even disregarded their right to access health services.

HIV-positive migrants reported discrimination because of their nationality or language and, as a result, preferred to return to their country of origin for their HIV medication (45). A study on barriers to adherence to TB treatment for non-nationals found that refugees and migrants blamed their non-national status for the discrimination that they experienced when seeking care (46). A qualitative study exploring the experiences of African migrant workers in a country in the WHO Eastern Mediterranean Region found that the workers faced interpersonal discrimination from

hospital staff, including racial discrimination, and that their migratory status further affected the inequities they faced when seeking health care (47). A nationally representative survey in France found that the occurrences of reporting discrimination by health services and deciding to forego care in the 12 months prior to the survey were highest among women (migrant and non-migrant), children born to migrants in host countries (second-generation migrants), migrants from Africa (northern and sub-Saharan countries) or overseas territories, and Muslim populations (48).

A longitudinal study in Ontario, Canada, found that migrants from Bangladesh, China, India, Pakistan and Sri Lanka in the last 6 months of their lives were more likely to receive invasive and aggressive care and to die in intensive care units compared with the general population (49). Afghan refugee women received suboptimal maternal care in comparison to non-migrant women in a neighbouring host country (50).

Restrictive immigration policies. Restrictive entry and integration policies have been linked to poor refugee and migrant health outcomes, thereby creating a dynamic in which migrants face disincentives and barriers to accessing and utilizing health care. Migrants, especially irregular migrants, reported a fear of repatriation or deportation resulting from accessing health services, high health care costs compared with local populations, and employer gatekeeping of health care across multiple WHO regions (9), including the Region of the Americas (51), the European Region (52,53) and the Western Pacific Region (3). The detection of certain communicable diseases, such as HIV, STIs or TB, in foreign residents can sometimes lead to cancellation of their residence permit and deportation (54–56). However, since 2015, several countries have made progress in lifting HIV-related travel

restrictions, including Belarus, Lithuania, the Republic of Korea and Uzbekistan (57,58).

Even where policies to support access to health services exist, fear of deportation because of insufficient documentation and lack of trust in the health system may still prevent refugees and migrants from using health services, as was the case among Chinese migrants in Kenya (9) and migrants living in Sweden (53). In research across 14 countries of the WHO European Region, migrants reported poorer health in countries with exclusionist or assimilationist policies than in countries that were more multicultural (59).

Transportation barriers. Difficulties with transportation or geographical barriers also affect access to health services. In Australia and New Zealand, agricultural migrant workers from Pacific Island countries were deterred from seeking treatment because of language and cultural barriers, as well as the geographical

isolation of their work (60). Sri Lankan Tamil refugees in India live in remote and rural camps that are distant from health services; they also reported delays in receiving benefits from health coverage schemes because of complicated application procedures (61).

4.2.2 Service models to meet refugee and migrant health needs

As is the case with culturally sensitive care, several regions report a lack of quality health services tailored to the requirements of refugees and migrants. Studies from the WHO South-East Asia (62,63) and Eastern Mediterranean (33,64) regions acknowledged the need for specialized service models, including increased health services for those who have experienced conflict and insecurity. A train-the-trainer model in Greece improved the use of trauma-informed practices of care among refugees (65).

The literature on delivering refugee- and migrant-sensitive health services focuses on interventions promoting good-quality, patient-centred care and patient satisfaction, in which the priorities, preferences and perspectives of refugees and migrants are used to improve health service delivery (66). The 2018 WHO European Region scoping review on communication barriers for refugees and migrants in health service settings identified four key strategies: cultural mediation, interpretation, translation of health information, and guidance and training for health care providers (18). A cross-sectional study of 251 migrant patients in South Africa revealed the importance of incorporating their perceptions of the health system into national planning for UHC (67). The study found that migrant patients' satisfaction with nurses depended on being given information about their condition, receiving polite treatment, the time spent in the facility and whether they received prescribed medicines.

Refugees and migrants may face many of the same barriers in accessing health services as the local population, including cost, proximity and general gaps in the health systems.

They also face barriers specific to their migratory status, such as out-of-pocket expenses or limited recognition of their status.

In Italy, the results of a participatory research project with the Chinese community, many of whom hold irregular status, suggested that direct participation in health promotion efforts may improve their engagement with health interventions such as screening for hypertension (68).

Research reviewed in the WHO Region of the Americas and South-East Asia Region focused on key public health approaches, including health education, access to information and improving health literacy (63,69).

In the literature on the WHO Region of the Americas, many interventions and initiatives were identified as having culturally sensitive approaches for migrants or refugees. Some of these were specifically designed to improve the relevance and acceptability of services or health information materials, and others

were designed to promote culturally and linguistically relevant solutions to gaps in the health system for migrants. The most common interventions involved providing health education and access to information regarding the overall health system and its specific services, and improving health literacy. For example, a Canadian health education programme improved navigation and knowledge of the Canadian health system among refugees and migrants (70). In the United States, an intervention reduced unnecessary visits to emergency departments for young Spanish-speaking children through Spanish-language text messages aimed at parents (71). In Chile, a 2016 programme focused on promoting migrants' access to health care and adherence to medical follow-up by providing them with information on the Chilean health system and their right to health (72).



Bew, a 45-year-old migrant worker from Myanmar, is vaccinated against COVID-19 in Mae Sot, Thailand, in November 2021. The vaccination campaign, which followed a survey exercise carried out by the Ministry of Public Health, aimed to ensure that migrant workers returning to Thailand were protected against COVID-19 as the country reopened its borders. © WHO / Anat Duangjan

Governmental agencies in Canada, Chile, Honduras, the United States and other countries, often acting in partnership with community organizations, have developed websites to provide migrants with key information about how to access health services. Other initiatives in Canada and the United States demonstrated the effectiveness of community-based health promotion models, for example, that targeted sites frequented by refugees or migrants, such as a Sikh temple (73), Asian-migrant churches (74), or specific supermarkets or media outlets, as well as those using various communication technologies (75). In Amsterdam, faith-based organizations were reported to be important settings for the implementation of public health programmes for African migrants; migrant community leaders were also crucial players in initiating and supporting community-based health awareness and health promotion programmes (76).

An emerging area of research in the WHO Eastern Mediterranean Region focuses on continuity of care and cross-border health care provision, including the migration of patients for health care purposes when health systems collapse as a result of conflict in the Region (77).

One study addressing cross-border care between Libya and Tunisia identified "how four key geopolitical periods shaped medical travel to [Sfax]: initial diasporic exchanges facilitated by bilateral agreements; an emerging medical tourism industry within private health services arising from the United Nations embargo on Libya; the 2011 political crisis and arrival of war-wounded; and therapeutic circulations and emerging transnational spaces of care resulting from the context of war" (78). Cross-border health care provision also arose in the WHO African Region, ensuring continuity of care for HIV-positive migrants between South Africa and Lesotho (45).

In 2018 the European Centre for Disease Prevention and Control developed evidence-based guidance on preventing priority infectious diseases among newly arrived migrants, including active TB and LTBI, HIV, HBV infection, HCV infection, schistosomiasis, strongyloidiasis and VPDs (79).

Significant variations in data collection within the WHO European Region exist, including in approaches to TB control. Consequently, TB elimination targets for the Region will not be met unless discrepancies in access to screening and treatment of refugees and migrants are addressed (80). Various studies have also demonstrated the effectiveness and cost-effectiveness of screening adult and adolescent refugees and migrants for active TB and LTBI and for other key infectious diseases, particularly when targeting those from high-incidence countries, making clear the importance of linking HIS to public health outcomes (81). Studies of surveillance data on outbreaks of cholera in refugee camps in Uganda (82) and of measles in refugee camps in Cameroon (83) both demonstrated the importance of early detection, treatment and rapid response to contain the spread within refugee settlements and local communities.

4.3 Health workforce

- Across every WHO region, efforts are under way to strengthen the capacities of the health workforce to serve refugees and migrants, including by ensuring sufficient staffing levels, training and resources.
- To deliver refugee- and migrant-sensitive health services, the health workforce must be able to provide culturally competent care and address health issues associated with displacement and migration; however, resources are often insufficient.
- Even in high-income countries, there are not enough health professionals with the necessary skills to provide culturally sensitive care to refugees and migrants.
- On a project level, some health workforces have successfully integrated refugees and migrants, including as cultural mediators, thereby both making services more effective and relieving staff shortages.
- The literature notes three key issues for migrant health care workers: the impact of displacement on the health workforce, the need for mechanisms to incorporate refugee and migrant health professionals, and the case of countries where large parts of the health workforce are migrants.

A well performing health workforce is one that works in ways that are responsive, fair and efficient to achieve the best health outcomes possible, given the available resources and circumstances. To deliver health services that are sensitive to the needs of refugees and migrants, the health workforce must be able to provide culturally competent care and address health issues associated with displacement and

migration (2). This section explores the findings of regional literature on sufficient health workforce staffing levels, training and resources for culturally competent care, and support for the use of refugee and migrant health workers.

4.3.1 Sufficient staffing levels, training and resources

Efforts to strengthen the capacities of the health workforce to serve refugees and migrants are under way across every region. They include specific training on cultural competencies, and on the staffing, support and resources the workforce will need if it is to provide sustained, good-quality care to refugee and migrant populations (14,69,84–88). In a qualitative study in Jordan, local health care providers for Syrian refugees with cancer described the "moral distress" of feeling they could not uphold their duty of care and humanitarian values given funding and other constraints (89). Another study addressed the impact of the Syrian refugee crisis on nursing in Lebanon, with the nurses and nursing directors interviewed citing fatigue, burnout and depleted capacity for compassionate care at individual level; rationing and stressed

Refugee and migrant patients will experience patient-centred care when, despite cultural differences, health professionals take the time to explain procedures, include culturally relevant references, appreciate the needs of the patients and involve patients in decision-making.

interpersonal relationships at practice level; and shortages in resources and poor performance at health system level (86).

Experiences in the WHO European Region highlight that movement of large populations requires swift recruitment and deployment of human resources, including all types of health professionals. Although ad hoc recruitment can address the immediate health and humanitarian needs of arriving refugees and migrants, a report found that this must be weighed against challenges to the sustainability and quality of service provision (85). The report concluded that adequate training and intercultural mediation was necessary to facilitate people-centred care in multicultural displacement contexts and even in settings of rapid service provision, such as during mass arrivals.

Many guidance documents and tools have been developed to support health care providers across refugee and migrant groups and regions. The existing health workforce should be trained in health coverage eligibility and migratory status, as well as in delivering cross-cultural health service to reduce discrimination (90). Training in cultural competence can strengthen the ability of providers to connect with refugee and migrant groups; this provider connection and attitude can have a positive influence on the trust and health-seeking behaviour of refugees and migrants (69,91–95). More specifically, refugee and migrant patients will experience patient-centred care when, despite cultural differences, health professionals take the time to explain procedures, include culturally relevant references, appreciate the needs of the patients and involve patients in decision-making (96).

A low-cost training, skill-building, practice and feedback programme designed to improve the capacity of physicians working at UNRWA

clinics in Jordan led to significant improvement in the knowledge assessments and clinical checklist scores of trainees; trainees also reported high satisfaction with the training (97). The Operational Refugee and Migrant Maternal Approach project developed cultural competence training for health professionals and midwives to help provide perinatal care for migrant women in Greece, the Netherlands and the United Kingdom; a key aspect of the curriculum involved follow-up training sessions over many months, recognizing that it takes time to change attitudes (94). Research from the WHO Eastern Mediterranean Region focused on cultural competency training for the migrant health workforce, especially migrant nurses, to enable them to provide quality services to the host population; this issue was particularly relevant in Saudi Arabia and the United Arab Emirates (98–100).

In border areas of Myanmar and Thailand, strengthening the health workforce by using village malaria workers has proven to be more effective in reaching migrant populations than other methods of malaria control, such as mobile malaria clinics and screening checkpoints for migrants. Such workers can reach hard-to-access malaria-endemic villages with a higher malaria prevalence, enabling them to test more community members and resulting in high rates of case-finding. These strategies are particularly important given the diversity of malaria knowledge in this region, where only half of short-term migrants are aware of the disease (101).

In the United States, studies collating the perspectives of providers highlighted the lack of adequate resources, support and training required to deliver acceptable care to refugee and migrant populations, such as the need for multilingual health education materials and interpretive services (102). Providers of health services for refugees in the United States

felt unable to fill structural gaps that require policy change; this impeded access to and the delivery of adequate and acceptable care (103). In other WHO regions, inefficiencies in the health system, such as weak infrastructure, lack of staff or staff support, and work overload were identified by providers as barriers to providing migrant-sensitive care (104–106).

4.3.2 Supporting refugee and migrant health workers

In every WHO region, studies present evidence highlighting the importance of including cultural liaisons, intercultural mediators, peer educators, CHWs, or volunteers from refugee and migrant communities (107–112).

Thailand's health system has included interpretation and cultural services since 2003 to reduce language and cultural barriers between health personnel and refugee and migrant populations. This is conducted through migrant health workers and volunteers in public health facilities, as well as through CHWs within migrant communities who serve as cultural mediators and provide basic health education (107).

In Italy, a national referral centre for transcultural mediation in the health system was established by law in 2013 (113). In Brazil, Bolivian health agents were deployed to reach Bolivian migrants who faced barriers in accessing health services (114). In the United States, peer counsellors and CHWs were used to promote vaccination (108) and colorectal cancer screening (115) among Asian migrant communities. For Spanish-speaking populations, *promotoras* were widely deployed, for example, to prevent NCDs through lifestyle changes (116). In Chile, cross-cultural facilitators reduced communication gaps caused by cultural and linguistic differences between mostly Creole-speaking Haitian patients and their health providers (117). By comparison in projects based in

Canada and the United States, where third-party medical consultants were used: providers did not always trust interpreters to translate without moral, cultural or gender bias; there were disruptions linked to interpreting via phone; and some hired interpreters may have had limited knowledge of medical terms (118). An innovative approach used in Türkiye was found to increase the number of primary care consultations among Syrian refugees living there. The Ministry of Health of Türkiye worked together with WHO to select, train and deploy Syrian doctors, nurses and medical translators among the Syrian refugee population to serve in primary health care services for Syrian refugees (119).

In the WHO Eastern Mediterranean Region, evidence has highlighted that migrant health care professionals need adequate training to provide culturally sensitive care to the host populations. In the United Arab Emirates, expatriate nurses working in palliative care were required to develop their skills in advanced communication and spiritual practices, in addition to acquiring knowledge of local cultural and religious norms (120). Migrant nurses in the Region expressed communication challenges and a lack of cultural awareness, partly the result of the unavailability of cultural education, indicating the need for education and orientation programmes, particularly those relating to end-of-life care, cultural values and family matters (98,99). The provision of such educational programmes for migrant health care professionals is critical as, among non-Muslim expatriate nurses in Saudi Arabia, cultural competency has been found to positively correlate with patient-centred care (100).

Refugee community workers were used in the Dadaab Refugee Complex in Kenya, working under the supervision of professional SGBV service providers to provide support

to SGBV survivors (111). Experiences from this humanitarian context showed that refugee community workers had tense relationships with the professional service providers, low pay, opposition from some community members and a lack of preparedness for the task ahead, as well as a lack of personal security because of subregional conflict and violence.

Intercultural mediators are employed to perform a variety of functions, e.g. linguistic facilitation and interpretation; bridging sociocultural gaps; preventing conflict and supporting resolution between health providers and patients; supporting integration and empowerment and providing advocacy to refugees and migrants about social and health services and their rights and entitlements to these services; building trust and facilitating the therapeutic relationship for services; providing psychosocial support, health education and counselling; and, depending on the situation, providing intercultural mediation versus interpretation (109). They have had a positive impact on health systems in 17 Member States of the WHO European Region. However, the positive impact may be limited by a lack of resources and processes for gaining professional qualification, insufficient training and the inconsistent implementation of intercultural mediation programmes. In 2016 the Government of Türkiye enacted a law allowing Syrian health professionals to work in the Turkish health system, with training supported by WHO. This was designed to integrate Syrian professionals into the health system and to ensure that Syrian refugees were able to receive health care without encountering language or cultural barriers (121).

Many countries of the WHO Western Pacific Region have experienced shortages of health care workers in remote and underserved areas, where international migrants may reside (122): this is partly because highly

skilled health care personnel may be working elsewhere. The refugee and migrant health workforce abroad face various physical, emotional and professional hardships in terms of displacement and migration and of work transition before they can operate effectively within a new health system: training and language capacities are required for acculturation to take place (123–126). Studies of refugee and migrant nurses and doctors employed in Australia have indicated both positive experiences (mostly related to income and autonomy) and negative experiences (a lack of cultural awareness or linguistic abilities) (126,127). As more refugee and migrant health professionals are recruited and fill gaps in the health workforce, understanding these challenges is important to support their work transition and needs as professionals (128). The WHO South-East Asia Region is also one from which health care workers primarily migrate. Research conducted within the WHO Eastern Mediterranean Region addresses the health of expatriate health workers, especially their mental health (121,129–136).

The literature raises three overarching issues related to the topic of migrant health care workers: the impact of displacement of the health workforce, the need for mechanisms to leverage the use of refugee and migrant health professionals, and the case of countries where large proportions of the health workforce are migrants.

4.3.3 Impact of migration

Although migration can have a detrimental effect on health systems, it can also bring opportunities. For example, as a result of advances in information and communication technologies, such as using telehealth and other digital health technologies, migration can allow the possibility of a diaspora health workforce to contribute from a distance

to health care in their country of origin (131–133,137). The literature highlights the economic benefits and also the excess mortality costs associated with physician migration and the absence of policies to prevent intraregional brain drain from low- and middle-income countries to higher-income countries (132,133). Economic modelling indicates that the countries incurring the greatest economic cost as a result of physician migration are India, Nigeria, Pakistan and South Africa, with the WHO African Region experiencing the greatest effect of all WHO regions (132,137,138).

On an individual level, migrants may also face numerous challenges upon returning to their home countries. Migrant health care workers returning to Botswana from high-income countries reported family ties and missing home as reasons for returning, but some said that they had experienced difficulties in reintegrating into the health system (139). Migrant nurses from Indonesia who worked as caregivers in Japan reported a variety of challenges upon returning home, including deskilling and struggling to re-enter the field of nursing (134). The diaspora of health care providers from Sudan is reported to have built links to overseas institutions and specialist clinical services, and has provided physical and monetary donations to public facilities (131). Health care providers choose their destination countries based on factors such as an ageing population, a better school system, good remuneration and lower rates of unemployment (137,138).

4.3.4 Better use of health professionals

The literature indicates that ways need to be found to improve the use of refugee and migrant health professionals in various contexts. When establishing themselves in host countries, refugee and migrant health workers

face the problem of not having evidence of their diplomas and other accreditation. This problem is recognized in the literature in many regions (140–142).

Migrant nurses and doctors can experience prolonged processes to obtain visas and validate their medical qualifications, leading them to accept less-skilled work in the interim (143). Such workers may also have migrated or been displaced for other reasons, and they may not be entitled to work legally in their profession in their host countries. In such circumstances, they may practice informally to fill gaps in their communities, for example, Syrian refugee health providers in Lebanon (144). In another example, a nursing school has been created in the setting of Sahrawi refugee camps as a means of mobilizing their limited resources to address the lack of health care professionals serving the refugee populations (145). As part of the Triple Win project, Germany is recruiting nurses from countries such as Bosnia and Herzegovina, the Philippines, Serbia and Tunisia, which educate a larger number of nurses than can be employed within their respective labour markets (143).

4.3.5 Countries with a large migrant health workforce

Migrant health care workers often play important roles in countries in which migrants are a significant component of the health workforce, although host country governments may have varying reactions to this reliance and may not collect adequate information to monitor it (Box 4.1). Evidence from the WHO Eastern Mediterranean Region documents the impact of government-induced efforts to encourage the employment of nationals in health care sectors that have been largely dominated by migrants. In Oman, a labour localization programme known as Omanization aims to promote the employment of nationals in the nursing field, which has raised concerns about the job security of migrant health workers (152).

Box 4.1.

Global patterns of health worker migration

Many countries do not have a dedicated policy or plan regarding health worker migration. Monitoring health worker migration, and the resulting impact on the composition of the health workforce, is key to ensuring sufficient national capacity to provide adequate and efficient health services. This is recognized by instruments such as World Health Assembly resolutions WHA63.16 and WHA69.19 (146,147), the *WHO global code of practice on the international recruitment of health personnel* (148) and the *Global strategy on human resources for health* (149).

Tools such as the National Reporting Instrument and National Health Workforce Accounts (NHWA) contribute to monitoring the migration of global health workers and generating evidence for policy dialogue (150). NHWA provides a standardized mechanism to strengthen health workforce information systems in countries, thereby building capacity and stakeholder cooperation at the national level with regards to health workforce data. NHWA also facilitates the improvement of health workforce data at global level. Since its adoption 5 years ago, more than 170 countries have been engaged in implementation of the NHWA.

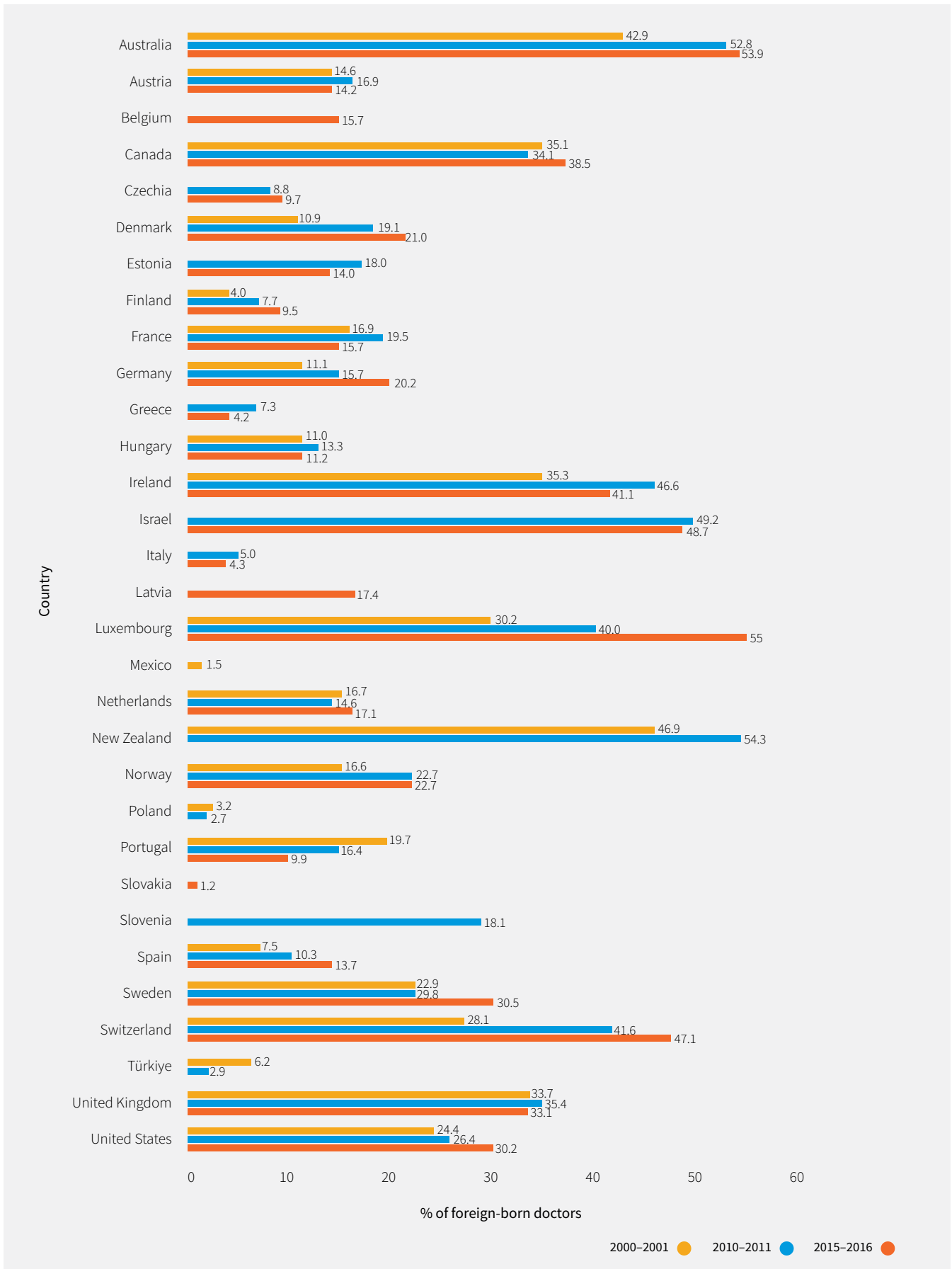
Although there are various approaches to monitoring health worker migration, they are built on the main concepts of foreign-trained and foreign-born health workers. As shown in Fig. 4.2, the proportion of migrant doctors employed by the health systems of countries in the Organisation for Economic Co-operation and Development has risen during the past two decades (151). Around two thirds of all foreign-born or foreign-trained doctors originated from within the OECD area and upper-middle-income countries, whereas lower-middle-income countries and low-income countries accounted for around 30% and 3–4%, respectively, of foreign-born doctors.

However, unpublished data collected by WHO show that the presence of foreign-trained health personnel is not restricted to any particular region and varies for each health occupation and between WHO regions. The WHO Eastern Mediterranean Region has the highest proportion of foreign-trained health workers. All regions show a higher percentage of foreign-trained medical doctors than of foreign-trained nursing personnel. Note that some countries do not have medical training facilities and, therefore, send their nationals to train abroad; this may be understood as having health workers that are all foreign-trained but not necessarily as health worker movement or brain drain. Some other countries actively recruit foreign-born, foreign-trained health workers to deliver health services. Adding to this mix is the voluntary movement of health workers seeking better career opportunities and the subsequent movement of health workers as a result of the migration of entire families. These points all highlight the fact that health worker mobility is difficult to measure using any single metric.

In Saudi Arabia the "Saudization" of the country's pharmacy workforce has also been considered, given that less than 20% of pharmacists are Saudi nationals and the country has an unmet need to train and retain nationals as pharmacists (153). Such a disparity is also apparent among other health care professions in Saudi Arabia,

including physical therapists (64,154). Some countries have had to rely on their migrant health workforce, particularly during the COVID-19 pandemic. Australia, where more than half of doctors and more than one third of nurses are born elsewhere, strengthened its reliance on migrant health workers during the pandemic

Fig. 4.2. Foreign-born doctors working within the OECD countries during 2000–2001, 2010–2011 and 2015–2016



Source: Socha-Dietrich & Dumont (151).

by lifting its restrictions on working hours for international nursing students: the burden on the health workforce was reduced by allowing nursing students to work for more than 40 h per week; this practice should be monitored to avoid any negative effects (112,137). The Maldives, which is still developing its national medical education, has relied heavily on expatriates in building its health workforce (155).

4.4 Access to medical products, vaccines and technologies

- Refugees and migrants have limited access to medications in some camp settings and informal settlements, often as a result of supply chain difficulties, cost, lack of adequate diagnostics and medication, and discrimination.
- Limited access to essential medications may lead refugees and migrants to resort to self-medication or to use non-prescribed medicines, such as antibiotics, resulting in possible antimicrobial resistance.
- Vaccination coverage policies for refugees and migrants vary widely and lack clarity, and are sometimes complicated by limitations and challenges connected to migratory status.
- In many places, screening services urgently require improvement to protect both people on the move and local communities in countries of transit or destination.

A correctly functioning health system ensures equitable access to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost-effectiveness, and their scientifically sound and cost-effective use. This section addresses refugee and

migrant access to good-quality and affordable medicines and vaccinations.

4.4.1 Access to good-quality and affordable medicines

Refugees and migrants may have limited access to medication. One study in Australia showed that resettled refugees had limited health literacy, were at a greater risk of mismanaging their medication than their host population, and faced difficulties in accessing medicine and pharmacy services (156). Literature related to the WHO Region of the Americas is scarce. Migrants from Latin American countries in the United States reported feeling that options for pharmaceutical pain management were not offered because the provider may have assumed they were unable to pay for them; in such cases, migrants may have borrowed medication from other migrants (41). A study shows that Nicaraguan migrants in Costa Rica reported using the black market for medication because of the various barriers to accessing health services (157).

Different refugee settings may present different barriers to medicine access. There are indications that at the onset of the emergency, Rohingya refugees in camps in Cox's Bazar, Bangladesh, experienced very low levels of access to essential medicines for both acute and chronic conditions because, among other factors, mobile clinics in the camps lacked diagnostic and refrigeration infrastructure (158). Among Rohingya refugees with serious health conditions, evidence indicates that 70% were prescribed ineffective pain treatments that were largely ineffective; no nearby pharmacy was found to have morphine available and only 1 out of 17 had suitable oral opioids (159). Although there is a significant lack of basic pain medicines at health facilities and pharmacies, additional barriers include health care providers being unaware of how to use pain medicine, believing they can be misused, or displaying

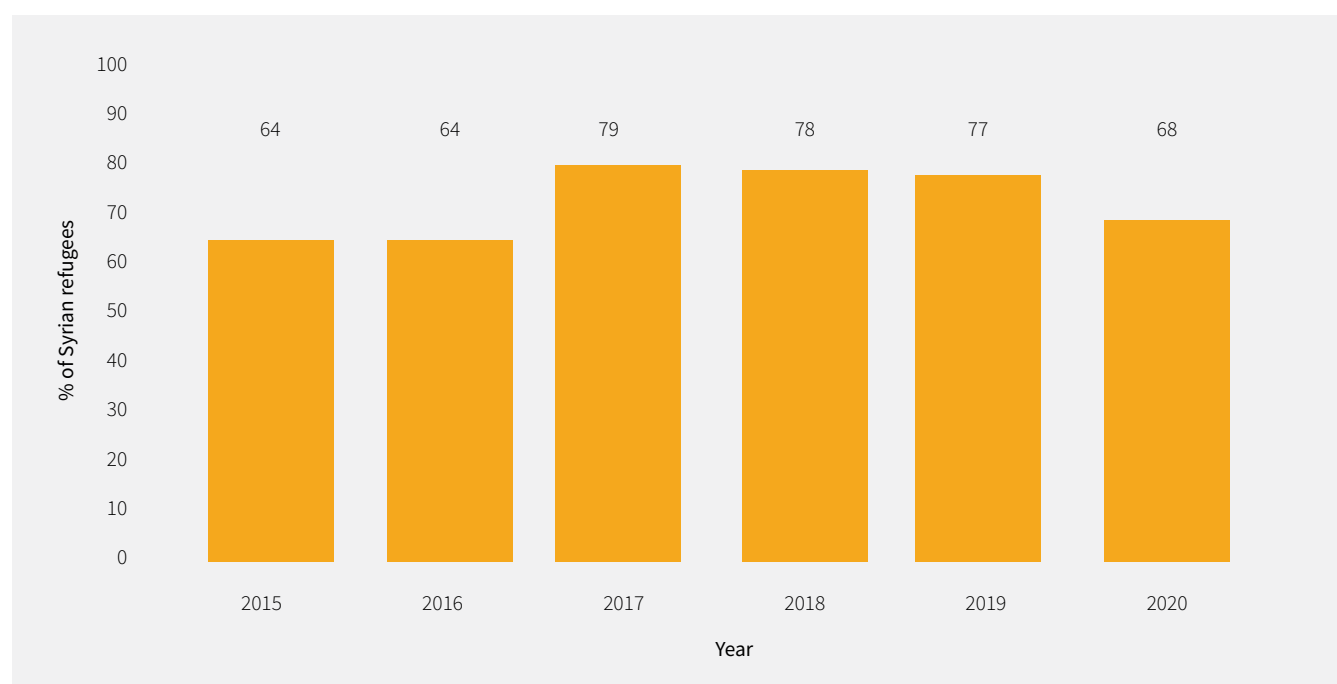
reluctance to prescribe them. Pharmacies may also employ staff with very little to no formal training in the field of pharmacy (160).

In another example, an evaluation of a pharmacist-delivered home medication management service for Syrian refugees in Jordan found that the programme was effective on several levels: it decreased treatment-related problems, physician approval rates of pharmacist recommendations were high and satisfaction rates among refugees were high (161). An evaluation of community-based primary care for NCDs delivered to Syrian refugees in Lebanon and Lebanese nationals showed satisfaction with the programme among patients and health providers; the greatest problems experienced were interruptions in the supply of medicines (162). In a vulnerability assessment of Syrian refugees in Lebanon, the cost of medicines was cited as a barrier for 77% of the respondents

included in the 2015–2020 UNHCR health access and utilization surveys. As shown in Fig. 4.3, the proportion of Syrian respondents reporting access to care or medication for chronic conditions increased from 2016 to 2017, and then gradually decreased to 68% in 2020 (163–168).

The idea that refugees and migrants may self-medicate because of barriers to accessing medicines is discussed in regional research. Obstacles including perceived barriers and cost may lead refugees and migrants to seek medicines elsewhere if they cannot acquire them through the health system. Among Chinese migrants in Australia, the use of non-prescribed antibiotics was influenced by their experiences with PHC access; one study showed that migrants with positive experiences and perceptions of health services were at a lower risk of using non-prescribed antibiotics (169).

Fig. 4.3. Proportion of Syrian refugees in non-camp settings who accessed care or medication for a chronic condition during the 3 months prior to survey, 2015–2020



Source: UNHCR (163–168).

Using non-prescribed antibiotics contributes to antimicrobial resistance. In the WHO South-East Asia Region, artemisinin-resistant malaria was present but migrants living near the Thailand–Myanmar border had low levels of awareness of the disease (101). In the WHO Eastern Mediterranean Region, a study of methicillin-resistant *Staphylococcus aureus* found no statistically significant differences in its carrier rate between the Iraqi host community and Syrian refugees (170). A study of antimicrobial resistance to cholera in the Islamic Republic of Iran showed that most cases were detected among male migrants aged 16–30 years from Afghanistan and Pakistan who had travelled without work authorization to Iran for job opportunities (171). It is important to build awareness among refugees and migrants regarding the rational and safe use of such medicines. In Uganda, records documented inappropriate antibiotic-prescribing practices in a refugee setting: these practices included the excessive use of antibiotics and a failure by health workers to diagnose (27%) and prescribe (47%) in line with treatment guidelines (172).

Vaccination is an important health service for refugees and migrants because vaccines protect both them and local communities in countries of transit or destination, and also prevent outbreaks and the spread of vaccine-preventable diseases.

4.4.2 Access to vaccines

Vaccination is an important public health measure and service for refugees and migrants because vaccines protect both them and local communities in countries of transit or destination, and also prevent outbreaks and the spread of VPDs. In some cases, vaccination services may be the first contact with the health system for a refugee or migrant. (See section 3.8.10 for details of COVID-19 vaccination programmes for refugees and migrants).

Many recent surveys in the WHO European Region assessed the seroprevalence of VPDs and of non-vaccine-preventable infections in refugees and migrants (173–177). One study in Swiss hospitals found that refugee and migrant children older than 5 years from certain countries in the WHO Eastern Mediterranean Region were mostly seronegative for hepatitis A and at risk of clinical infection (178). Two Italian studies showed heterogeneity in vaccination coverage from VPDs among children born to migrant women, although this varied according to the geographical context, antigen, birth cohort and area of origin (179,180). Two other Italian studies showed that adult migrants at risk for influenza-related complications had lower influenza vaccination coverage than Italian citizens (181,182).

Across the WHO European Region, there is a lack of clarity and consistency in national guidelines and policies for access to immunization programmes by refugees and migrants (183). Comprehensive national immunization plans exist in 42 Member States in the Region but, as of 2017, only 11 Member States have included recommendations in their plans for refugees and migrants (184). This lack of coordination across the Region could lead to confusion among some health care professionals about whether to immediately vaccinate refugees and migrants who have an

unknown or unclear vaccination history or to first conduct serological testing (185). There is also a lack of clarity about which vaccinations to prioritize upon arrival (186). To address these challenges, the Region identified three critical elements that are applicable beyond the Region to ensure high vaccination coverage among refugees and migrants: (i) the provision of appropriate vaccination services to new arrivals, (ii) the delivery of immunization services to refugees and migrants as part of mainstream health services, and (iii) the provision of targeted and culturally appropriate immunization services to reach particular refugee and migrant communities (184).

IOM is partnering with various countries in the WHO Western Pacific Region and beyond in a comprehensive vaccination programme for arriving migrants (187). This programme is facilitated by the IOM's migration health assessment centres for more than 15 VPDs. The National Immunization Programme in Thailand is a good example of providing vaccinations to hard-to-reach migrant populations, with migrant children near the Thailand–Myanmar border receiving timely and appropriate vaccines at the following rates: 92.3% for TB (bacille Calmette–Guérin, BCG); 85.3% for three doses of oral poliovirus vaccine (OPV); 63.8% for diphtheria, tetanus and pertussis vaccine; 72.2% for three doses of hepatitis B vaccine; and 90.9% for measles vaccine (188). However, the same data suggest that overall vaccine coverage in migrant populations is low.

Literature published by the WHO African Region suggests strengthening cross-border vaccination and seasonal migration surveillance, including permanent vaccination points at transit points and vaccination on market days (189–191). With a focus on polio outbreaks in the Horn of Africa and Kenya, responses have been evaluated and

successful strategies presented, notably the establishment of permanent vaccination points coupled with timely intervention and coordination (192). A study of the spatial heterogeneity of measles vaccination coverage in 10 sub-Saharan African countries identified clusters of low levels of coverage linked to border areas with highly mobile transborder populations. Such clustering was associated with low levels of health education and limited access to health services (193). According to a study based in the WHO African Region, the recognized need for improved and accessible systems for serological immunoassays in remote settings is being addressed (194). In the WHO Region of the Americas, a report on 10 Caribbean island countries and territories (Antigua and Barbuda, Bahamas, Barbados, Dominica, Grenada, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, and Trinidad and Tobago) indicated an interest in ensuring that migrants entering the countries received the required vaccinations; however, current screening processes are weak, hindering the effectiveness of the programme (195).

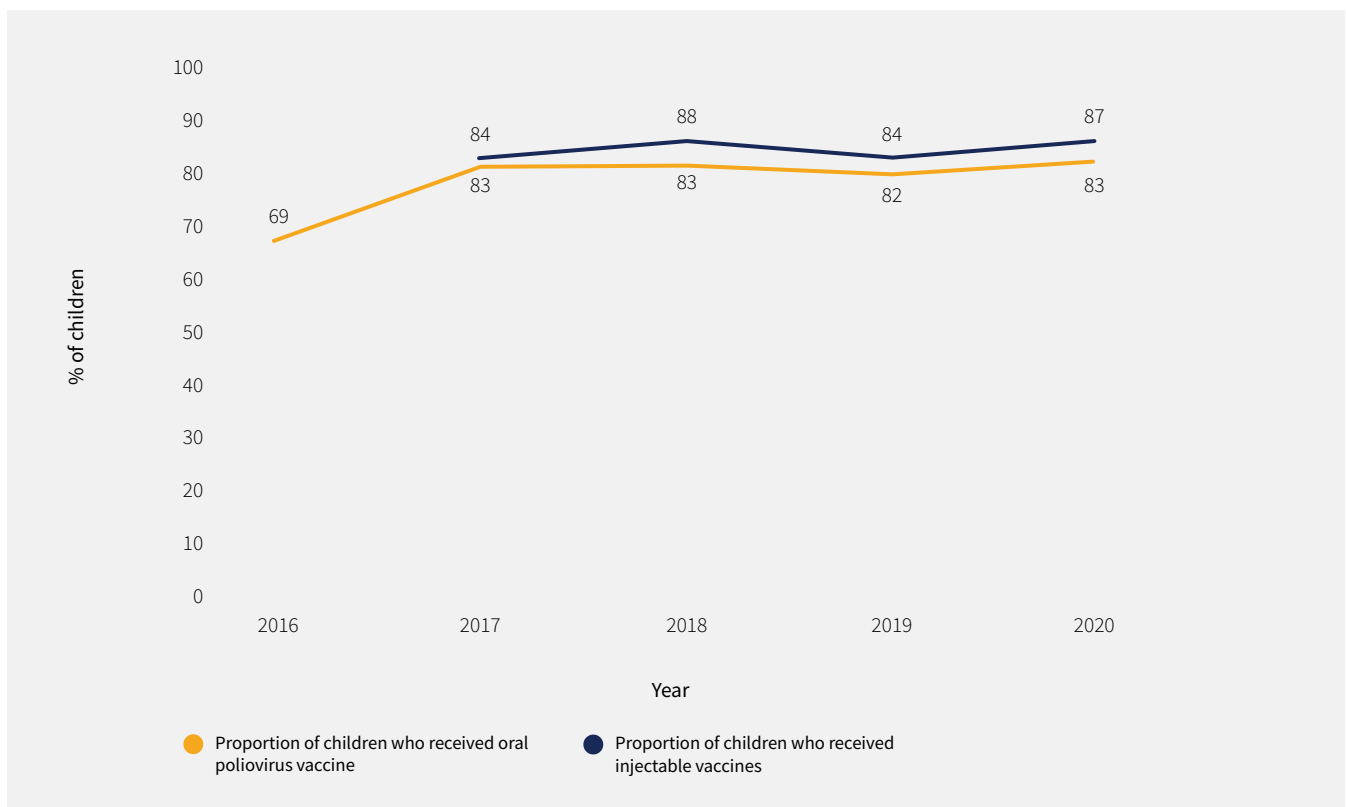
In the United States, vaccination rates for refugees and migrants are lower than for those born in the country (109,196,197), with the exception of influenza and hepatitis A and B among specific age subgroups and among people with NCDs (198). Refugees and migrants from various eastern African countries living in Australia indicated that they had limited access to immunizations, mostly because of language barriers; this could be addressed by increasing community-led information dissemination and reminders about immunizations to these groups (199). In New Zealand, less than 50% of migrant children were found to have at least one recorded vaccination event in the National Immunisation Register; even among migrant children who had been in New Zealand for at least 2 years, only 60% had a record in the

register (200). Similarly, children born in China to refugees from the Democratic People's Republic of Korea had lower immunization rates than both the host population and other migrant children (201). Inequities in vaccine access can affect the prevalence of VPDs; in New Zealand, children from refugee backgrounds experienced a higher incidence of VPD-related hospitalizations than the host population (202).

A study estimating vaccine coverage among refugee populations in Jordan and Lebanon found that only about 35% of Syrian refugee children in Jordan and less than 15% in Lebanon were fully immunized through routine vaccination services (see Fig. 4.4,

which summarizes UNHCR health access and utilization survey data for Lebanon) (203). The same study noted that although household surveys may be the most reliable way of assessing need, they are limited by information bias (e.g. absent or unreadable vaccination cards, or recall bias of mothers) and a lack of sampling frames for mobile populations. The study recommended conducting research on the validity of recall methods and on links between campaigns and routine immunization programmes and that vaccine access for hard-to-reach populations be improved. Another study in Lebanon reported that although Lebanese children had higher levels of antigens than Syrian children at baseline for a vaccination programme, this difference was substantially

Fig. 4.4. Proportion of Syrian refugee children in Lebanon who received oral polio vaccination and injectable vaccines



reduced by the campaign (204). UNHCR health access and utilization survey data for Lebanon (163–168) confirmed these gaps in full vaccination coverage (Fig. 4.4). The proportion of children who received oral poliovirus vaccine increased from 69% in 2016 to 83% in 2017, and the proportion of children who received injectable vaccines fluctuated between 84% and 88% from 2017 to 2020 (Fig. 4.4).

4.5 Health information systems

- Significant limitations to refugee and migrant health data exist in HIS, such as an absence of epidemiological data, a lack of standardization of data within countries and regions, comparability across databases or time of data collection, and an inability to disaggregate data by migratory status.
- Data collection efforts may also place too great an emphasis on monitoring for infectious diseases, while neglecting comprehensive public health monitoring.
- The protection and privacy of refugee and migrant health data are major concerns. The inappropriate sharing of data can have serious consequences, such as limiting access to health care and other services, or even deportation.

Correctly functioning HIS ensure the production, analysis, dissemination and use of reliable and timely information and data on health determinants, health systems performance and health status. Data and evidence for a report on health should predominantly come from HIS; however, this report predominantly uses information from peer-reviewed and grey literature from around the world because of a lack of

systematically collected and comparable data through national HIS or common reporting frameworks. There are some comparable data from major household surveys, but these data have their own challenges (Chapter 5). A comprehensive set of information and data from HIS around the world and their thorough analysis is essential to gain in-depth knowledge of refugee and migrant health (Box 4.2; Chapters 5 and 6).

4.5.1 Data collection on refugee and migrant health

Data collection related to epidemiological surveillance and screening and migratory status has been reported across several WHO regions. Because there is a need to collect epidemiological data effectively in cross-border areas among highly mobile populations who have difficulties completing treatment, research on HIS in the WHO South-East Asia Region was based on the coordination of malaria and TB surveillance. One of the major issues for TB control in Thai border areas is incomplete surveillance data as a result of migrant patient mobility and loss to follow-up, which can lead to multidrug-resistant TB (209). Initiatives for multicountry coordination around malaria data collection and information-sharing platforms include the WHO Mekong Malaria Elimination Programme (210) and the Asia Pacific Malaria Elimination Network (211). The Mekong Programme has helped many participating countries move towards their malaria elimination objectives. The Asia Pacific programme is an example of an effective mechanism for gathering country-specific information on high-risk populations to target patterns of displacement and migration and other data from 21 partner countries (211). Identifying the health needs of refugees and migrants during the reception pathway, while respecting human rights and confidentiality, requires effective and efficient screening systems that are integrated with HIS and health

Box 4.2.

Global frameworks and regional guidelines that support harmonized data for refugee and migrant health

Although global frameworks and regional guidelines are not binding, they are useful in mobilizing countries to actively collect and harmonize data on displacement and migration health. These frameworks and guidelines are examples of how such documents could facilitate the disaggregation of health data by migratory status and integration with HIS.

Global indicator framework for the Sustainable Development Goals (SDGs)

The Inter-Agency and Expert Group on SDG Indicators developed a set of 231 unique indicators in 2017 (205), to be refined and reviewed annually: 24 indicators should be disaggregated by migratory status (e.g. 1.1, 3.2, 3.c and 5.5); several indicators are directly related to migration (4.b.1, 10.7.1, 10.7.2, 10.7.3, 10.7.4, 10.c.1 and 16.2.2); and two indicators explicitly require disaggregation by migratory status (8.8.1 and 8.8.2).

The WHO Strategy and action plan for refugee and migrant health in the WHO European Region

The strategy and action plan was presented to the WHO Regional Committee for Europe in 2016 to "promote the inclusion of migrant [and refugee] variables in existing data collection systems" (206). A progress report in 2020 found that most Member States that do not currently collect information about variables related to displacement and migration had plans to incorporate such data into their routine HIS. This encouraging trend highlights how guidelines can support better integration of data on displacement and migration health (207).

The WHO Global action plan on promoting the health of refugees and migrants, 2019–2023

The global action plan advises the strengthening of HIS to ensure that standardized and comparable records on refugee and migrant health are available at the global, regional and country levels (208).

care delivery (212). For example, border health-check procedures must be evidence based with data shared across countries, risk specific and include a guaranteed treatment linkage to the national health system in the case that a disease is detected (213). However, national policies on screening and identifying the health needs of refugees and migrants differ among countries, creating challenges across the EU, EEA and other regions (214). Of the 30 countries for which data were collected, three reported no systematic health assessments for newly arrived migrant

children (Greece, Portugal and Spain), and insufficient information was retrieved in health assessments in three other countries (France, Liechtenstein and Luxembourg).

Some of the major gaps in HIS across most regions include the absence of epidemiological data, lack of standardization, comparability issues across locations or time, and the inability to disaggregate data by migratory status (4,89,122,215–217). The WHO European Region notes that region-wide indicators generally do not exist, so there are no

comparable data to use in a regional overview of refugee and migrant health. Health Evidence Network synthesis report 66 examined HIS in the Region and found that the lack of clear regional and national strategies prevents the collection of relevant data and that existing data collection processes favour infectious disease monitoring over comprehensive public health monitoring (4). In 2020 a task force on the collection and integration of data on refugee and migrant health in the Region developed various national and regional policy recommendations, including ensuring adequate personnel for HIS, financing, logistics and information technology, as well as regulatory and legislative components (Box 4.3). Data protection and privacy, as well as the ethical use of data, are special considerations for refugee and migrant populations; firewalls are necessary for sharing data between governmental bodies that could affect legal status or deportation (207).

A recent WHO report highlighted differences in the capacity of HIS between high- and low-income countries: although low-income countries have weaker HIS, these are the countries in which most refugees are hosted (Chapter 1) (218). The management of health data in refugee-hosting districts of Uganda highlights the multiple challenges of integrating refugee stakeholder data at national level, including collection, analysis and reporting (215). The Ugandan model seeks to integrate the UNHCR Integrated Refugee Health Information System with the Ugandan National Health Management Information System by streamlining data to inform policy and programming in the field. Countries in the WHO Western Pacific Region have established a regional monitoring framework for UHC and the SDGs, which includes making improvements to civil registration, vital statistics and surveillance systems; however, the data collected do not yet include migratory

status (122). Research identified several key challenges across the Region – fragmented and independent information systems, limited availability of data, insufficient disaggregation of data, and poor data quality and reliability – that would remain even if migratory status was captured.

An article on the SRH of migrants in the United States identified 29 publicly available sources of national, state and local data on immigration, race and ethnicity; SRH; and health service use (216). Key challenges included restricted access to disaggregated data, variations in the type of information collected over time across sources, changes in race and ethnicity categories or measures of immigration, and a lack of detailed data on both migration and SRH.

Literature published in the WHO Region of the Americas describes the implementation of electronic health records (EHR) and other HIS technologies in migrant health contexts. One study focused on implementing EHR to promote hypertension management in migrant-serving primary care practices in New York City (219). The intervention focused on training staff to generate routine hypertension registry reports, as well as to develop and implement medical alerts and order sets (i.e. treatment guidelines). This would require implementing standardized and mandatory fields within the EHR for race and ethnicity subgroup documentation, training in the codes used for billing and improving reporting practices. The intervention succeeded in improving health outcomes for migrant patients, and participating primary care practices reported both satisfaction with and adherence to the implementation of EHR. This successful intervention can inform future interventions to implement EHR in other settings in the Region. Another study in the United States used a multicomponent health

Box 4.3.

An interoperable health information system for refugees and migrants

SAVe (Support Asylum and Vulnerabilities through e-health, or electronic health) software is an electronic health information system developed by the Italian National Institute for Health, Migration and Poverty in 2019 (207). It allows national health system staff, including those working in the reception system, to enter and access data about the health of migrants, even those whose status is irregular and who are not registered with the national health service.

SAVe is designed both for rapid initial health assessment at or just after arrival and for later phases of the reception path. It provides tools to investigate traumas, mental health needs and vulnerabilities.

The system is now being implemented by local health authorities in those Italian regions where more than 14 000 migrants are hosted, and further rollout to all first-reception centres and hotspots is planned. The health records of a single patient can be saved on demand to external storage devices, facilitating continuity of care even if the patient moves to another country. The system is compliant with rules on personal data protection and privacy.

A unique migrant identifier code included within the SAvE system will allow the files to be linked to the electronic health record. Data from the SAvE system are anonymous and will be made available only for epidemiological and research purposes, permitting the regular release of data sheets and epidemiological reports on the status of migrant health.

information technology screening tool for the diagnosis and treatment of major depressive disorder and PTSD in primary care settings among migrant patients from Cambodia (220). The tool is programmed to use evidence-based clinical algorithms and guidelines to facilitate evidence-based care. It helped to improve the diagnosis and treatment of migrant patients suffering from both disorders, and will be used to inform future interventions based on information systems to enhance mental health services for migrant patients. HIS-based low-cost tools – electronic health (e-health) and mobile health (m-health) – are used in refugee settings, particularly for data collection related to NCDs, and have proven effective for diabetes and hypertension detection,

regulation and referrals among refugees from occupied Palestinian territory, including east Jerusalem, in Lebanon (221). However, service delivery methods that rely on technology or mobile devices, such as smart phones and digital applications, were considered expensive by Syrian refugees accessing electronic mental health services (222).

4.5.2 Dissemination and use of refugee and migrant health data

Standardized, good-quality data must be collected and then shared across government entities at the national and global levels to inform evidence-based policies and programmes (207). The grey literature across WHO regions includes examples of extensive reports on various issues related to refugee and migrant health status and access to health care. These reports use national databases or registrations, or were commissioned by research institutions and international organizations, including United Nations agencies (122,195,210,215,207,223–225). Such reports are used to inform policy-makers and to develop guidance and programmes for practitioners that promote health among refugee and migrant populations. For example, a report on the potentially harmful effects of migratory status on the health of migrants in Mexico, including exposure to poor living conditions and insecurity as well as risks related to sexual exploitation and human trafficking, provided key information for policy-makers (226).

IOM and UNHCR conducted various types of data collection activities and household surveys with refugees and migrants in the WHO Region of the Americas and other WHO regions, including information relevant for health systems such as the Displacement Tracking Matrix (227). For example, IOM collected, analysed and shared information on human mobility in these countries through the Northern Triangle Migration Management Information Initiative, which covers El Salvador, Guatemala and Honduras (228). Issues related to collecting and synthesizing better-quality refugee and migrant health data are discussed in Chapter 5.

4.6 Financing

- Direct and indirect health costs are major barriers to accessing health care in all WHO regions, especially where refugees and migrants are not covered by national health systems or by social security or insurance schemes.
- Refugees and migrants often cannot afford the out-of-pocket costs of accessing health services, and so spend less overall on health care than host populations.
- Some countries have successfully integrated refugees and migrants into their public health and social protection strategies and services.
- Although many countries might perceive a lack of incentives to include refugees and migrants in UHC, evidence clearly indicates that it may actually be more costly to exclude them from health coverage.

An effective health financing system raises adequate funds for health in ways that ensure that people can use the services they require but are protected from the financial catastrophe or impoverishment associated with having to pay for them. This section discusses the mechanisms for and challenges of financing a health system inclusive of refugees and migrants. It includes public, private and mixed systems, as well as information about the health costs and expenditures for refugee and migrant populations and estimated costs for the host country health systems.

4.6.1 Refugee and migrant expenditure

The out-of-pocket costs or financial burden of accessing health services are often prohibitive

for refugees and migrants (3,229–233). Even when refugees or migrants are legally entitled to certain health services, there are often hidden costs (e.g. transportation or hiring translators) or co-payments that hinder seeking or accessing care. For example, among non-camp Syrian refugees in Jordan with chronic health conditions such as hypertension and diabetes, only 84.7% received treatment; the gap was linked to the out-of-pocket payments necessary in seeking care (232). However, the host community also reported high out-of-pocket payments; these were sometimes higher than those of the refugee population because, in some cases, refugees received financial aid from agencies such as UNHCR. This study illustrates the importance of financial protection for health equity between host and migrant population groups. Another study of Syrian refugees in Jordan found that preventive and primary

health services were indeed more accessible than higher-level services, but that structural and financial barriers limited their access (234).

In some contexts, refugee and migrant populations spend less overall on health services. A study in the United States showed that out-of-pocket spending by migrants on health services was significantly lower than that of the host population with equivalent health needs, mostly attributable to less spending on private insurance (235). Similarly, a study in Colombia focusing on health-related expenditure among migrants and non-migrants living with HIV (and in contact with a medical facility) found that the average per capita expenditure was lower for migrants, at US\$ 859, than for non-migrants, at US\$ 1796, when adjusted for age and clinical characteristics (236). This trend holds among refugees and migrants in Kuwait, whose out-of-pocket expenses on health consultations were generally lower than those of nationals, mostly because refugees and migrants tend to seek more care at public (i.e. lower-cost) facilities (237).

These results do not mean that refugees and migrants have fewer health care needs. As indicated in section 4.2.1, there exist several barriers that prevent access to health care systems. This is the case for Venezuelan migrants who, lacking refugee status, do not have access to public health services. Many in Colombia and Peru reported seeking alternatives, such as telemedicine, local pharmacies and extra-legal care networks, the costs of which then affect their ability to pay for their basic needs such as food and housing (238).

4.6.2 Public health coverage

Insufficient financing of health systems that cover refugees and migrants can create significant barriers to access (239), leading to inadequate health services and health

Identifying the health needs of refugees and migrants during the reception pathway, while respecting human rights and confidentiality, requires effective and efficient screening systems that are integrated with health information systems and health care delivery.

Although low-income countries have weaker HIS, these are the countries in which most refugees are hosted.

promotion or to a lack of training among providers and CHWs. Financial constraints are the primary challenge towards meeting the health care needs of refugees and migrants in many countries. At the same time, existing national health policies also carry implications for addressing the health needs of refugees and migrants. For instance, in Malaysia, medical fees for migrants have been noted to have increased, influencing their access to health services (239). Except for Sri Lanka and Thailand, most other countries in the WHO South-East Asia Region do not have specific policies for the health of refugees and migrants, and these groups are excluded from health insurance programmes. The health service card possessed by migrants in Thailand is used most often by those with poorer health or those seeking treatment for chronic illness, many of whom face high costs for health services (Box 4.4). Sri Lanka has enacted multiple policies such as the 2009 National Labour Law, which provides HIV and reproductive health care to labour migrants; the 2013 National Migration Health Policy, which promotes the health of outbound and inbound migrants; and the Child Health Protection Plan, which covers the children of migrant workers and emphasizes psychological and mental health needs (210).

Although Syrian refugees in Jordan have access to public health services for children, nearly half reported paying out-of-pocket fees for either the consultation or medication, possibly because they lacked awareness of subsidized care (232). As shown in Fig. 4.5, the proportion of Syrian refugee households in Lebanon who reported knowing that subsidized services were available at public health centres sharply declined from 75% in 2015 to 57% in 2016, and then fluctuated until it reached 68% in 2020 (163–168). Knowledge of free access to vaccinations for children at public health centres and free medications for

acute conditions decreased from 2015 to 2017, followed by a steady increase to 2020. These results take into account the multiple political and economic crises faced by the Lebanese population in recent years.

Despite differences within and between countries, several countries in the WHO Western Pacific Region have enacted policies to provide health service entitlements to migrants, specifically migrant workers (249). EU countries on the periphery of the WHO European Region, which are often the first countries of arrival, face disproportionate financial costs to cover the health needs of asylum seekers. A study concluded that given widespread political controversies about national security and economic austerity, among other issues, countries in the EU lacked incentives to honour health as a human right and to provide UHC for people who have been forcibly displaced (250).

A 2015 study in Germany concluded that the cost of excluding refugees and asylum seekers from public health coverage was higher overall than that of allowing regular access (251). However, a 2018 study following up on the rapid acceptance of more than 1 million refugee applications in Germany during the Syrian refugee crisis showed that the average expenditure by refugees was 10% higher than for the regularly insured; although these increased costs were mostly because of higher hospital expenditure and a lack of awareness of outpatient and preventive care, they were reported to quickly decrease with increasing time living in Germany (252).

Removing legal restrictions to health coverage may improve access to and use of PHC by refugees and migrants, particularly for irregular migrants (253), thereby reducing their reliance on or need for more costly emergency care or hospitalization (254). A study in Cameroon

Box 4.4.**Inclusion of refugees and migrants in Thailand's health system as a part of UHC**

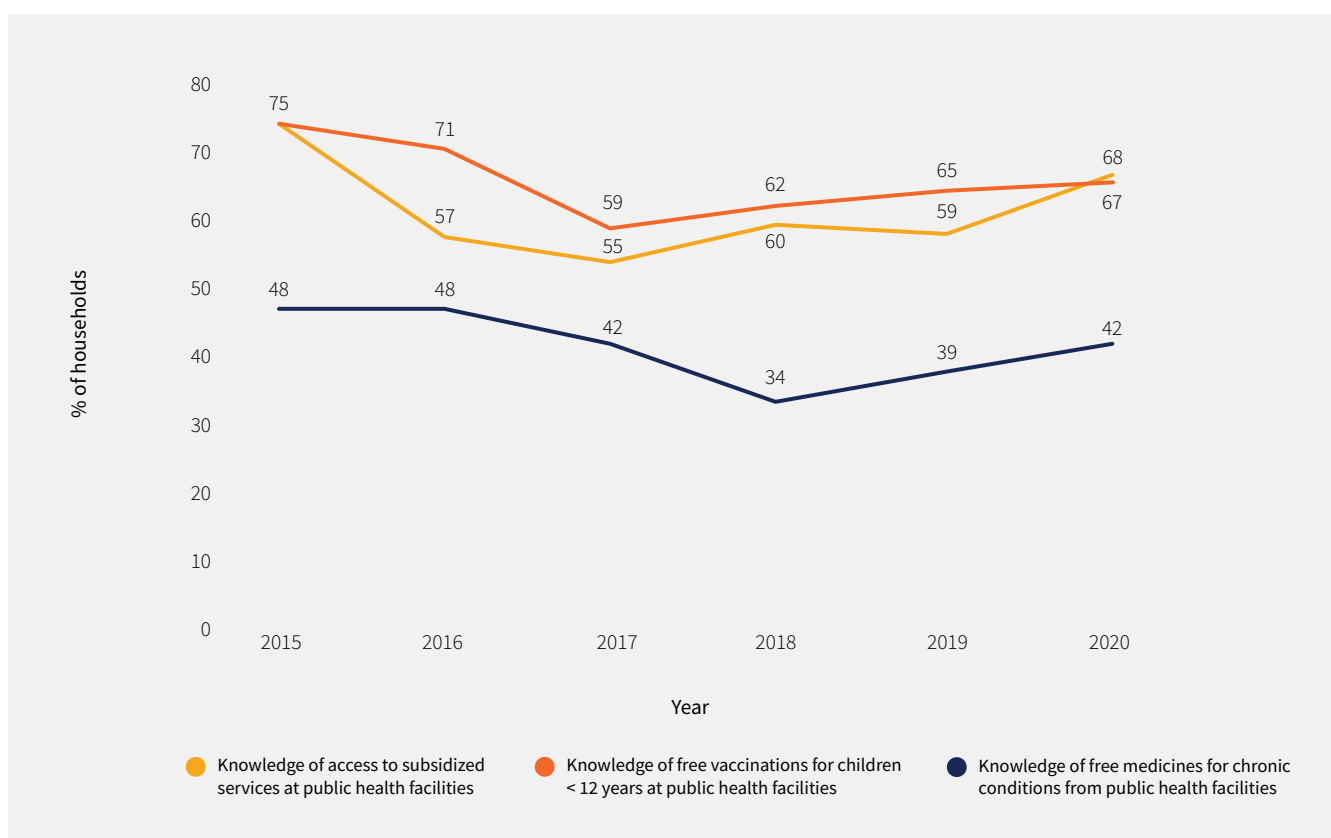
All workers in formal industries in Thailand have mandatory health coverage through the national social security scheme, which is financed by workers, employers and the state. However, for many years irregular migrant workers were not eligible for state social security schemes and had to either forego health services or pay out of pocket for them. In 2001, the acute need for migrant labour led the Thai Ministry of Public Health to introduce a new public insurance scheme that included irregular migrants from neighbouring Cambodia, Lao People's Democratic Republic and Myanmar. The voluntary health insurance card scheme (HICS) is funded by an annual premium paid by workers, enabling access to public health care facilities and reduced catastrophic health expenses. However, with no contribution from employers or government, it was not possible to make it mandatory, some migrant workers remain outside both schemes (240–244).

Some of the major barriers faced by migrant workers in accessing migrant health insurance schemes include their irregular status, nationality verification, the voluntary or semivoluntary nature of health insurance schemes, administrative delays in enrolment, poorly responsive services, lack of portability with respect to employer or location, and the resistance of employers to hiring migrants. The voluntary nature of the scheme encouraged the participation of those who were ill, while healthy migrants tended to abstain, given the extra cost to the household. Nationality verification and enrolment in insurance schemes require effective communication and coordination among various ministries, such as the Ministry of the Interior, Ministry of Labour and Ministry of Health, but deficiencies in communication and coordination were among the major bureaucratic hurdles that reduced the uptake of health insurance by workers. The low levels of enrolment by migrants inhibited large pooling of risks, which affected the financial viability of the scheme (242,243).

Despite these barriers, enrolment increased. In 2011, less than 10% of migrants in Thailand were insured. However, this number had increased to 64.0% by 2019. One of the major reasons was the inclusion of health volunteers, who were recruited from migrant communities and workplaces (245,246).

While a one-size-fits-all service was introduced to simplify migrants' access to health insurance, several challenges persist, such as ambiguous policy messages from other government departments and authorities, and slow progress of nationality verification. However, Thailand is one of the few countries to have made remarkable progress in financing migrant health: the HICS significantly reduced the costs of inpatient care and out-of-pocket expenditures for migrant workers (247). Some of the factors that helped reduce these expenses were insurance status, residence close to facilities and a history of visiting health facilities after 2013 (when the HICS expanded its benefit package); conversely, severe illness and advanced age increased inpatient care and out-of-pocket costs (245).

The Migrant Fund is another mechanism that provides protection to migrant workers who are not covered by existing government insurance schemes: this voluntary, non-profit health insurance scheme has been operating along the Thailand–Myanmar border since 2017. It was especially important for irregular migrants who were otherwise excluded from insurance schemes as a result of unclear policies (245). Other low-cost insurance schemes for migrants on the Thailand–Myanmar border also exist (248).

Fig. 4.5. Awareness of available subsidized PHC services within Syrian refugee households in Lebanon, 2015–2020

Source: UNHCR (163–168).

found that MCH service indicators did not deteriorate with the inclusion of refugees into the health system (255). Globally, more research is needed on the economic costs of including refugees and migrants in public health systems.

4.6.3 Mixed or private health insurance coverage

A variety of factors affect access to public insurance, most notably migratory status and whether a person is recognized as a refugee. Social health insurance is often linked to employment status and therefore individuals without the legal right to work cannot access insurance. Populations in vulnerable situations, such as elderly migrants, may be excluded from health insurance, and lack of awareness about how to enrol can be an obstacle for migrants of all ages. Chile,

Mexico and the United States are examples of countries with health systems that are divided between the public and private sectors. Although compulsory or voluntary prepaid insurance schemes are an important component of health system financing in Chile, in 2017 18% of migrants in Chile reported no health insurance coverage, a proportion

A variety of factors affect access to public insurance, notably migratory status and whether a person is recognized as a refugee.

more than four times higher than that of the Chilean-born population (256). Evidence in Chile showed that migrants do not enjoy sufficient public sector health coverage and lack the opportunity to access private health coverage, mostly because of migratory status, employment status and lack of financial resources (257). Children born in the United States to Mexican parents who then returned to Mexico were significantly more likely to be uninsured than Mexican-born children (39% versus 13%). Such children were also less likely to be affiliated to any of the public schemes, a disparity that decreased over time (258). Within the mixed health system of the United States, some policy-makers have called for limits on access to public health coverage by migrants, particularly to Medicaid. Irregular migrants in the United States were found to have contributed US\$ 2.2–3.8 billion more to the Medicare Trust Fund than they withdrew annually during 2000–2011, generating a total surplus of US\$ 35.1 billion (259).

Singapore requires employers of documented migrant workers to provide health insurance for them under the Employment of Foreign Manpower Act and to cover health care costs resulting from work-related injuries through the Work Injury Compensation Act (14). Despite these worker insurance schemes, gaps still exist in access to health services among migrant workers. Some schemes cover only labour-related health costs, and various other perceived barriers discourage migrant workers from using insurance schemes (3).

A study in Jordan, the Kurdistan region of Iraq, and Lebanon found that Syrian refugees and the host community (as well as IDPs in the Kurdistan region) relied on both the public and private sectors for health services, although with significant variation across the three settings (260). Public health services were accessed roughly equally by refugees and their

host communities in Lebanon, accessed more by host communities than by Syrian refugees in Jordan, and accessed more by Syrian refugees than by both host communities and IDPs in the Kurdistan region. Disparities were also apparent between refugees living inside and outside of camps. In the Kurdistan region, Syrian refugees living outside of camps were more likely to use private health care facilities than those living in camps. In Jordan, camp residents were more likely to report receiving external financial assistance, such as from the United Nations or NGOs, for medical visits than refugees living outside camps. This demonstrates that both public and private health care services are used by refugees and host populations, underscoring the vital importance of integrating health services and avoiding parallel systems.

4.7 Leadership and governance

- Across the WHO regions, innovations in service and financing show that health systems can be made more inclusive and effective for populations on the move.
- Levels of health coverage for refugees and migrants vary among WHO regions. In some, levels of coverage are similar to those of the host population. Although data in several regions are scarce, they seem to indicate that equal access is not the norm.
- A number of solutions exist that could strengthen health systems and help to deliver UHC that includes refugees and migrants.

Leadership and governance involve ensuring that strategic policy frameworks exist and are combined with effective oversight, coalition building, the provision of appropriate

regulations and incentives, attention to system design, and accountability. Leadership and governance at all levels of the health system play a critical role in enacting the political or institutional changes necessary to improve the delivery of care to refugees and migrants.

4.7.1 Legal access and entitlement: national policies

A critical issue is the right to access health services through legal entitlements. At national level, policies, plans and resource allocation must meet the health needs of refugees and migrants. Ideally, these would address multisectoral needs that acknowledge the determinants of health by involving sectors such as employment, education, housing and immigration. Subnationally, local governments and community leaders have key roles in service delivery across all sectors and in promoting the effective integration and well-being of refugees and migrants within communities (2).

Literature on access to and the use of health services by refugees and migrants is often limited or inconsistent in most WHO regions. Tracking access to and use by refugees and migrants is particularly challenging in highly fragmented public and private health systems. However, several initiatives have been set up to collect data on the migration policies of countries, including the UNHCR Public Health Services Survey, which examines the inclusion of refugees within national health services, policies and financing. The 2020 survey collected data on a wide range of issues, such as the inclusion of refugees in national health plans, plans for nutrition and WASH, and the financing of and access to public health services. Of the 47 countries (out of the 48 included in the survey) that have a national health policy or plan, 29 reported that refugees were included in their policy or plan and one reported that coverage was only partial (261).

Similarly, but covering the wider field of refugees and migrants, the IOM's Migration Governance Framework provides a set of Migration Governance Indicators (MGIs) to help countries to assess the comprehensiveness of their migration governance structures (Box 4.5). The MGIs aim to offer insight on policy measures and advance the conversation on migration governance by clarifying what well-governed migration might look like in the context of SDG Target 10.7 (facilitate orderly, safe, and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies) (265).

Using data from the Migrant Integration Policy Index (MIPEX) Health Strand for 2015, a 2018 report from the WHO European Region (266) showed significant variation in levels of entitlement to health services over 34 Member States. Recent changes to these entitlements were largely associated with a change of government. MIPEX 2020 reported increased involvement of migrants in information provision and health service design and delivery in some countries in the region (267). Box 4.6 summarizes the MIPEX findings for the WHO European Region; this level of aggregated regional data on refugee and migrant entitlement to health services is not available for other WHO regions (268).

In 2020, Ireland carried out a COVID-19 assessment from a migration governance perspective, for which the MGI team developed a set of questions specific to COVID-19 to be added to standard MGI assessments. The resultant report revealed that all migrants have access to all government-funded health services under the same conditions as nationals, including migrants in irregular situations. This includes access to COVID-19-related health services, such as testing, treatment and vaccinations, with access to vaccinations

Box 4.5.

Assessing migration health policies using the Migration Governance Indicators

The International Organization for Migration (IOM) developed its Migration Governance Framework in 2015, accompanied by a set of 94 Migration Governance Indicators (MGIs) (262).

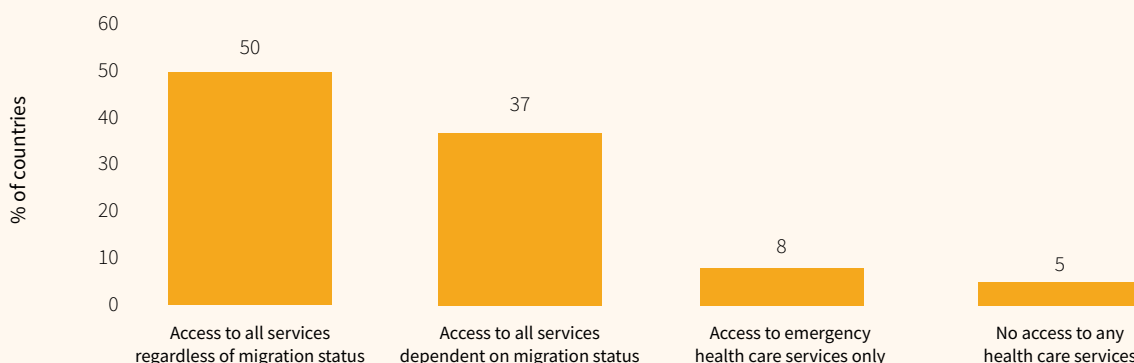
The MGIs are divided into six domains: the rights of migrants; whole-of-government approach; partnerships; well-being of migrants; mobility dimensions of crises; and safe, orderly and dignified migration. The first assesses the adherence of countries to international standards and fulfilment of the rights of migrants, using indicators related to access to certain social services by refugees and migrants, particularly whether all migrants have the same status as citizens in accessing government-funded health services.

Data collected in 84 countries between 2018 and 2021 show that in half of the assessed countries, all migrants have access to all government-funded health services under the same conditions as nationals, regardless of their migratory status (Fig. 4.6). In just over one third of the countries, access depends on migratory status; in 8% of countries, migrants have access only to emergency health care services; and in 5% of countries they have no access to any government-funded health services (263).

Also assessed is the extent to which in a non-discriminatory manner migrants can access social security, equal pay, unemployment benefits, old-age pension, invalidity benefits, maternity leave, family benefits and social assistance. In 32% of the countries, all migrants have access to social protection. In comparison, in 38% of countries, social protection is available for long-term residents and residents on family reunion permits or for certain categories of residents on temporary work permits. In 12% of countries, social protection is available only for long-term residents, while in 18% no migrants have access to social protection (IOM, unpublished data, 2022).

In addition to these aggregate data, country examples of MGI data can highlight the connection between migration governance and health issues, including in the context of COVID-19. In Cambodia, the MGI process influenced the development of a new migration health policy, making clear how important it is for all refugees and migrants to access essential health care. The policy addresses the well-being of migrants and their rights in accessing health care services (264).

Fig. 4.6. Do refugees and migrants have the same status as citizens in accessing government health services? Information from 84 countries, 2018–2021



Source: IOM, unpublished data.

Box 4.6.

Measuring health policies and the integration of migrants

The Migrant Integration Policy Index (MIPEX) has measured the level of integration of refugees and migrants within policies in countries across six continents since 2004. Its research covers eight policy areas of integration: labour market mobility, family reunification, education, political participation, permanent residence, access to nationality, antidiscrimination protections and health (268).

The 2020 edition (268) noted that:

[t]he inclusion of migrants into the health system of destination countries is coming to be seen as an essential component of their integration. . . How governments treat refugees and migrants strongly influences how well refugees and migrants feel both in terms of their mental and physical health. Under inclusive integration policies, refugees and migrants and host populations end up with similar health outcomes in terms of their reported health, chronic illnesses, elderly diabetes and frailty and, even, mortality. Under restrictive policies, refugees and migrants are much more likely than the host population to suffer from these poor health outcomes. For refugees' and migrants' health, a country's overall approach to integration seems more determinant than any specific area of integration policy.

Key findings on access to health care have been published on the following topics.

Entitlements. (i) For migrants with valid residence permit/visa, conditions vary significantly across countries: in some countries, legal residents may have unconditional entitlements but be limited only to emergency care, while in others they have conditional access to the same range of services as for national citizens. Beyond these legal conditions, 27 MIPEX countries present no administrative barriers to migrants with a valid residence permit or visa (the corresponding figures for asylum seekers and irregular migrants are 15 and 2, respectively). (ii) For asylum seekers, conditions of coverage may include remaining in an assigned location or having inadequate financial resources. As per MIPEX data, Germany imposes the condition that entitlement to more than emergency care is granted only to asylum seekers or refugees who have been in the country for longer than 15 months. Only 15 countries impose no administrative barriers for asylum seekers. (iii) Irregular migrants face the greatest legal and administrative barriers to obtaining coverage. Although not all aspects of their entitlements were measured in 2019, there are few signs that these have improved since 2015. Only two countries – Chile and Switzerland – do not impose any administrative barriers for irregular migrants. Where coverage for this group is limited to emergency care, a barrier always exists in the form of a discretionary judgement about whether the health problem constitutes an emergency.

Accessibility of health services. Refugees and migrants are regularly reached with targeted information about entitlements and use of health services in only 19 of the 56 MIPEX countries. In 23 countries, all three groups are regularly reached with targeted information about health education and health promotion.

Responsive services. Qualified interpretation services for patients with inadequate proficiency in the official language (or languages) are provided free of charge in 19 countries, but are not available in 20 countries. In the other 17 countries, interpretation can be arranged, but the individual using the service must pay for it. In 31 countries, migrant patients and communities are involved to some extent in designing and providing health information and services; community involvement is greatest in Australia, Austria, Czechia, Ireland, New Zealand, Spain and the United Kingdom.

Policies to promote change. Most countries (44/56) have funding bodies that have supported refugee and migrant health research in the last 5 years. The most extensive support is found in western European and traditional destination countries. Comprehensive policies to include refugees and migrants within health care services have emerged in Australia, Ireland, Norway, Sweden, the United Arab Emirates, the United Kingdom and the United States, whereas in 33 countries the health system does not systematically address migrant or ethnic minority health issues.

supported by the translation of resources into several languages (269).

The United Kingdom has unconditional inclusion in health services for asylum seekers. Since 2017, many services have been free to all migrants, including sexual health, family planning, primary health care, emergency departments and walk-in centres, and the treatment of mental and physical conditions caused by torture, FGM, and domestic or sexual violence (270,271). By law, Italy guarantees health care to all migrants with or without regular status, and irregular migrants are entitled to urgent and essential preventive

or curative care (272). However, as discussed in section 4.2, there exist barriers to accessing care for refugees and migrants, even when they are entitled to receive such care.

Entitlement to health services for migrant children (including UASC) is also well documented in the WHO European Region. The report of the European Commission (273) compared the entitlements of migrant children with those of children from the host population and compared entitlements across the different categories of migrant children. In 20 countries, child asylum seekers are entitled to the same level of care as children



A South Sudanese refugee and community leader lives in an "open area" settlement on the outskirts of Khartoum. The cost of transport to the nearest hospital means that, despite the fact that refugees are entitled to equal access to health services in Sudan, health is out of reach for many in his camp. Transport to the nearest cemetery is also prohibitively expensive. "We can't even afford to bury our dead," he said. © WHO / Lindsay Mackenzie

from the host population. They are enrolled in the national health system, which includes emergency, primary and secondary health services. However, in a few countries, such as Germany and Slovakia, entitlements are restricted compared with those of nationals. The document also reported entitlements for children of irregular migrants (and the migrants themselves) and compared them with those of children from the host population. In 11 countries, children of irregular migrants are generally entitled by law to the same health services as children from the host population, with some differences in the level of specific entitlements. In 15 countries (Austria, Bulgaria, Czechia, Finland, Germany, Hungary, Ireland, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Slovakia, Slovenia and the United Kingdom), entitlements for children of irregular migrants are more restricted than those of national children. In most of these countries, anything beyond emergency care is available only at full cost. In a different report, a longitudinal cohort study of children and adolescent refugees in Germany showed that unaccompanied or separated children had a greater need for PHC services than other refugee children (274). In the WHO Region of the Americas, levels of health coverage are generally lower for refugees and migrants than for the host population. This is especially true for more recently arrived migrants, irregular migrants and those in transit (275,276). In Chile, however, health coverage for various vulnerable migrant groups has steadily expanded in recent decades. This began with providing prenatal care for irregular migrants, followed by emergency care for labour migrants and their families (277). In 2016, a landmark decree provided coverage for irregular migrants by the public health insurance system (257). Chile launched the International Migrant Health Policy in 2018 to provide strategic guidelines to promote the

health of migrants in Chile (278), based on a series of community dialogues undertaken during the drafting process. In another example of inclusive policy in the Region, Costa Rica developed a framework for the right to health of migrants, guaranteed by the Ministry of Health (279). In Peru, Secretarial Resolution No. 266-2020 established the Functional Health Unit for Migrant and Border Populations, attached for oversight to the Vice-Ministerial Office of Public Health (280).

In the United States, health system policy reforms have been adopted on a state-by-state basis to expand public health coverage (Medicaid) for citizens and non-citizens (those deemed lawfully present and children of irregular migrant parents). The results in states that have expanded coverage have been positive, with increased access to health care observed among racial and ethnic minorities (281). However, the policy reforms do not include irregular migrants. A 2020 cross-sectional study found that 47.1% of irregular migrants in the United States were uninsured, a proportion three times higher than that of documented migrants and eight times higher than that of the host population (282). According to another study, migrant children in the United States had lower levels of health insurance coverage than non-migrant children (283).

However, the governance mechanisms needed to ensure that policies and frameworks lead to full or greater access to health care are not always in place. In Canada, for example, the Interim Federal Health Program provides temporary limited benefits to specific groups not covered by provincial, territorial or private health services. However, in practice, access to health for asylum seekers is subject to political discretion; claimants from a country deemed safe by the government may have restricted access (284).

In addition to general guarantees of health services for the migrant population in Colombia, the government issued a specific decree in 2018 guaranteeing access to health services for both documented and irregular Venezuelan refugees and migrants (285). However, in another example of policy not being converted to practice, restrictive migration policies hinder the ability of irregular migrants to access health care services in Colombia (286).

In the WHO Western Pacific Region, countries with a high proportion of migrants, including Australia, New Zealand, the Republic of Korea and Singapore, have implemented systems and laws to grant refugees and migrants access to national health systems. For example, the Republic of Korea's Employment Permit System provides universal national health insurance and industrial accident compensation to migrant workers (287,288). In Singapore, the Work Injury Compensation Act and the Employment of Foreign Manpower Act are two policies that facilitate access to health care for migrant workers. The former requires employees to cover health care costs for injuries sustained during work, while the latter mandates employers of low-wage migrant workers with a Work Permit or S Pass to cover the costs of their medical treatment (14). The Seasonal Workers Program in Australia and New Zealand's Recognised Seasonal Employer scheme are required to provide seasonal migrant workers with health insurance (60). The New Zealand scheme has recently expanded coverage to provide a more comprehensive insurance option for workers, offering wide-ranging medical treatments.

In the WHO South-East Asia Region, information about access to health services for refugees and migrants is limited. Thailand is one of the few countries in the Region to make significant progress towards

including migrants in its UHC system, but it still faces issues of low utilization and inadequate financing (242). Most literature published on refugees within the Region involves Rohingya refugees in Bangladesh. Although government, international and national organizations have supported and coordinated health service provision to Rohingya refugees, the health situation in Rohingya refugee camps remains suboptimal: service delivery is poor, mainly because of a lack of resources and inadequate health facilities; accessing health services and essential medicines is difficult because of a lack of finances, low levels of health literacy and sociocultural barriers; and the refugees experience poor-quality overall living conditions (289).

Evidence is similarly limited in the WHO African Region, although the need for health services and facilities in refugee and humanitarian contexts is clear. A study from Rwanda reported that refugee access to palliative care services was extremely limited in this refugee-hosting country, and research on refugee camps in South Sudan has highlighted the need for the integration of comprehensive neonatal interventions within national policies (290,291). A policy review of documents addressing access to health care services for refugees in South Africa found policies to be contradictory or not implemented, or to contain ambiguous language. Only 5 of 12 reviewed policy documents outlining services for refugees were found to have been implemented and were in operation (292).

4.7.2 Refugee-hosting contexts

Leadership and governance should ensure that the inclusion both of the ideals of the UNHCR Comprehensive Refugee Response Framework (293) and of refugee needs in national policies lead to improvements in health services and health outcomes.

Although Uganda has an integrated refugee policy that includes refugees in public health interventions, ethnographic research in western Uganda highlighted that, in reality, implementation of these interventions inadvertently resulted in excluding refugees from programming and disease surveillance, in this case around African sleeping sickness (human African trypanosomiasis) (294). Some of the implementation challenges leading to the exclusion of refugees were donor pressure to reduce the scope of the programme, challenges in building local supervision capacity, barriers to using rapid diagnostic tests, and high staff turnover. Additionally, studies in South Africa documented the importance of multisectoral and multilevel (including local) approaches for delivering coordinated responses to refugee and migrant health (295,296).

The current war in Syria and subsequent refugee crisis have provided important insights into the international support required for greater inclusion of refugees in the health systems of refugee-hosting countries. Such support includes governance mechanisms to ensure that international aid translates into inclusive policies and that the policies themselves lead to increased access to health services for refugees (297).

In February 2019, the Ethiopian Government approved a new Refugees Proclamation (No. 1110/2019) that provides access to health services for refugees and asylum seekers (298). In addition, the Federal Ministry of Health in Ethiopia signed a memorandum of understanding with the Administration for Refugee and Returnee Affairs, UNHCR and UNICEF to ensure that all refugees and migrants have the right to basic health services and to be treated in the same way as members of the host community (299).

4.7.3 Regional leadership and strategies

There exist many examples of regional strategies and frameworks designed to improve access to inclusive health services by refugees and migrants.

Two publications for sub-Saharan African countries indicated the need to develop migration-aware governance responses to HIV (300,301). Focus areas for future research and intervention on HIV and migration in the subregion include recognition of population movements related to improved livelihoods, urbanization and conflict, and access to treatment and care. In addition, they recognized the need to build the governance and capacity of health systems to respond to both HIV and migration with standardized, multisectoral and evidence-informed approaches.

At subregional level, the ministries of health of six Andean countries – Plurinational State of Bolivia, Chile, Colombia, Ecuador, Peru and the Bolivarian Republic of Venezuela – established the *Andean health plan for migrants 2019–2022*, which aims to ensure good-quality and coordinated health services for migrants who transit through those countries (302). The Central American Integration System of 2019 – which includes Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama – provides strategic guidelines for comprehensive health care and public health surveillance for migrants in transit, returnees and fragmented families in the subregion (303). Many similar examples of regional strategies exist, although evaluations of the effectiveness of these regional efforts are not well documented.

In the WHO South-East Asia Region, the Safe and Fair programme (2018–2022) supported by the United Nations Entity for Gender Equality and Empowerment of Women and

the ILO has been implemented, representing a partnership between several countries with large numbers of citizens migrating for work, namely Cambodia, the Lao People's Democratic Republic, Malaysia, the Philippines and Viet Nam. The initiative aims to ensure that the rights of migrants are enforced and to end violence against female migrant workers in particular (304).

The *Strategy and action plan for refugee and migrant health in the WHO European Region* and subsequent progress reports provide a framework for collaborative regional action, focusing on, as priorities, advocating for the right to health, addressing the social determinants of health, achieving public health

preparedness and response, strengthening health systems and their resilience, preventing communicable and noncommunicable diseases, ensuring ethical and effective health screening and assessment, and improving health information and communication systems (206). Developed in response to the 2030 Agenda for Sustainable Development (205), this strategy and action plan also includes clear considerations for follow-up and monitoring of its implementation (206,266).

The most recent example of responsive leadership in the WHO Eastern Mediterranean Region is the inclusion of refugees and migrants in the COVID-19 vaccination scheme in Jordan (Box 4.7).

Box 4.7.

Leadership by example: Jordan includes refugees and migrants in COVID-19 vaccination

In mid-January 2021, at a public health clinic in the town of Irbid, Jordan became one of the first countries in the world to offer COVID-19 vaccinations to refugees and migrants (305). This initiative – at a time when 313 557 cases and 4137 deaths attributed to the disease had been reported in the country (306) – was a striking example of leadership in providing equitable access to health care regardless of migratory status and of decisive action in the face of a health crisis (307).

At the onset of the COVID-19 pandemic, and with the support of WHO, the Jordanian Ministry of Health rapidly produced the National COVID-19 Preparedness and Response Plan (308). The Plan emphasized a whole-of-society approach, with beneficiaries including Jordanians and non-Jordanians residing in both host communities and refugee camps. This was followed in December 2020 by the multisectoral COVID-19 National Deployment and Vaccination Plan (308), which was designed to extend free-of-charge, equitable access to all individuals in Jordan.

The challenge facing Jordan was a daunting one. Approximately two fifths of Jordan's resident population are migrants (309); in 2021, the Office of the United Nations High Commissioner for Refugees had registered a total of 658 000 Syrian refugees in the country (310). According to the United Nations Relief and Works Agency for Palestine Refugees in the Near East, more than 2 million registered refugees, including those recently displaced from the Syrian Arab Republic as well as the majority who have lived there for decades (311), reside in Jordan, which also hosts tens of thousands of refugees from other countries such as Iraq, Sudan and Yemen (310).

In the WHO Western Pacific Region, many frameworks have made advances towards achieving both UHC and the SDGs, taking into consideration disadvantaged groups such as refugees and migrants. Examples of such frameworks include the *Regional action agenda on achieving the Sustainable Development Goals in the Western Pacific* (312), the *Regional framework for urban health in the Western Pacific 2016–2020* (313), the *Western Pacific regional framework for action for disaster risk management for health* (314) and *Universal health coverage: moving towards better health – action framework for the Western Pacific Region* (315).

4.8 Summary

There are major and widespread gaps in the six building blocks covered in this chapter, but solutions do exist that can help to deliver UHC that includes refugees and migrants.

Refugees and migrants may face many of the same barriers to accessing health services as the local population, including cost, proximity and general gaps in health systems. However, they also face barriers specific to their migratory status, such as out-of-pocket expenses or limited recognition of their status.

When refugees and migrants do access health services, they may face a workforce that is insufficiently trained to deliver health services that are sensitive to refugee and migrant health; efforts to strengthen these capacities are now under way across every WHO region.

Refugees and migrants often have limited access to essential medication and may resort to self-medication or the use of non-prescribed medicines, such as antibiotics, resulting in possible antimicrobial resistance. Vaccination coverage varies widely for refugees

and migrants, especially upon arrival in their host countries or in border areas, while their immunization rates have often been found to be lower than those of host communities.

The collection and processing of accurate and relevant health information is essential for delivering high-quality health services to refugees and migrants. However, the literature indicates widespread gaps in HIS, including the absence of epidemiological data (both from general surveillance and from arrival or border screening), a lack of standardization of data within countries and regions, comparability issues across locations or time of data collection, and an inability to disaggregate data by migratory status.

Direct and indirect health costs are major barriers to accessing health care across regions, and refugees and migrants often cannot afford the out-of-pocket costs. As a result, they tend to spend less overall on health services than host populations. Some studies, however, show that it costs more to exclude refugees and migrants from health coverage than to include them, an area that requires more research.

Finally, leadership and governance play an essential role by providing the necessary policy frameworks and adjusting them as required to deliver health care to refugees and migrants.

References

- Legido-Quigley H, Pocock N, Tan ST, Pajin L, Suphanchaimat R, Wickramage K et al. Healthcare is not universal if undocumented migrants are excluded. *BMJ*. 2019;366:14160. doi:10.1136/bmj.14160.
- Health of migrants: the way forward: report of a global consultation, Madrid, Spain, 3–5 March 2010. Geneva: World Health Organization; 2011:3–5 (<https://apps.who.int/iris/handle/10665/44336>, accessed 7 April 2022).
- Rajaraman N, Yip TW, Kuan BYH, Lim JFY. Exclusion of migrant workers from national UHC systems: perspectives from HealthServe, a non-profit organisation in Singapore. *Asian Bioeth Rev*. 2020;12(3):363–74. doi:10.1007/s41649-020-00138-y.
- Bozorgmehr K, Biddle L, Rohleder S, Puthoopparambil SJ, Jahn R. What is the evidence on availability and integration of refugee and migrant health data in health information systems in the WHO European Region? Copenhagen: WHO Regional Office for Europe; 2019 (Health Evidence Network Synthesis report no. 66; <https://apps.who.int/iris/handle/10665/328634>, accessed 7 April 2022).
- Chekero T, Ross FC. “On paper” and “having papers”: Zimbabwean migrant women’s experiences in accessing healthcare in Giyani, Limpopo province, South Africa. *Anthropol South Afr*. 2018;41(1):41–54. doi:10.1080/23323256.2018.1442729.
- Pérez-Urdiales I, Goicolea I, San Sebastián M, Irazusta A, Linander I. Sub-Saharan African immigrant women’s experiences of (lack of) access to appropriate healthcare in the public health system in the Basque Country, Spain. *Int J Equity Health*. 2019;18(1):59. doi:10.1186/s12939-019-0958-6.
- Barghadouch A, Norredam M. Psychosocial responses to healthcare: a study on asylum-seeking families’ experiences in Denmark. *J Immigr Minor Health*. 2022;24(2):551–5. doi:10.1007/s10903-021-01183-x.
- McNatt ZZ, Freels PE, Chandler H, Fawad M, Qarmout S, Al-Oraibi AS et al. “What’s happening in Syria even affects the rocks”: a qualitative study of the Syrian refugee experience accessing noncommunicable disease services in Jordan. *Confl Health*. 2019;13(1):26. doi:10.1186/s13031-019-0209-x.
- Qiu J, Song D, Nie J, Su M, Hao C, Gu J et al. Utilization of healthcare services among Chinese migrants in Kenya: a qualitative study. *BMC Health Serv Res*. 2019;19(1):995. doi:10.1186/s12913-019-4846-y.
- Jemutai J, Muraya K, Che PC, Mulupi S. A situation analysis of access to refugee health services in Kenya: gaps and recommendations: a literature review. York: Centre for Health Economics; 2021 (CHE Research Paper no. 178; https://www.york.ac.uk/media/che/documents/papers/researchpapers/CHERP178_refugee_health_services_kenya.pdf, accessed 7 April 2022).
- Hunter-Adams J, Rother H-A. A qualitative study of language barriers between South African health care providers and cross-border migrants. *BMC Health Serv Res*. 2017;17(1):97. doi:10.1186/s12913-017-2042-5.
- Zihindula G, Meyer-Weitz A, Akintola O. Lived experiences of Democratic Republic of Congo refugees facing medical xenophobia in Durban, South Africa. *J Asian Afr Stud*. 2015;52(4):458–70. doi:10.1177/0021909615595990.
- Takbiri A, Takian A, Foroushani AR, Jaafari-pooyan E. The challenges of providing primary health care to Afghan immigrants in Tehran: a key global human right issue. *Int J Hum Rights Healthc*. 2020;13(3):259–73. doi:10.1108/IJHRH-06-2019-0042.
- Ang JW, Koh CJ, Chua BW, Narayanaswamy S, Wijaya L, Chan LG et al. Are migrant workers in Singapore receiving adequate healthcare? A survey of doctors working in public tertiary healthcare institutions. *Singapore Med J*. 2020;61(10):540–7. doi:10.11622/smedj.2019101.
- Inci MG, Kutschke N, Nasser S, Alavi S, Abels I, Kurmeyer C et al. Unmet family planning needs among female refugees and asylum seekers in Germany - is free access to family planning services enough? Results of a cross-sectional study. *Reprod Health*. 2020;17(1):115. doi:10.1186/s12978-020-00962-3.
- Jeffries R, Abdi H, Ali M, Bhuiyan ATMRH, El Shazly M, Harlass S et al. The health response to the Rohingya refugee crisis post August 2017: reflections from two years of health sector coordination in Cox’s Bazar, Bangladesh. *PLOS One*. 2021;16(6):e0253013. doi:10.1371/journal.pone.0253013.
- Nathenson RA, Saloner B, Richards MR, Rhodes KV. Spanish-speaking immigrants’ access to safety net providers and translation services across traditional and emerging US destinations. *Milbank Q*. 2016;94(4):768–99. doi:10.1111/1468-0009.12231.
- McGarry O, Hannigan A, De Almeida MM, Severoni S, Puthoopparambil J, MacFarlane A. What strategies to address communication barriers for refugees and migrants in health care settings have been implemented and evaluated across the WHO European Region? Copenhagen: WHO Regional Office for Europe; 2018 (<https://apps.who.int/iris/handle/10665/326238>, accessed 7 April 2022).
- Yelland J, Riggs E, Szwarc J, Casey S, Duell-Piening P, Chesters D et al. Compromised communication: a qualitative study exploring Afghan families and health professionals’ experience of interpreting support in Australian maternity care. *BMJ Qual Saf*. 2016;25(4):e1–e1. doi:10.1136/bmjqs-2014-003837.

20. Sampson AK, Hassani-Mahmooui B, Collie A. Lack of English proficiency is associated with the characteristics of work-related injury and recovery cost in the Victorian working population. *Work*. 2020;67(3):741–52. doi:10.3233/WOR-203323.
21. Shakya P, Tanaka M, Shibnuma A, Jimba M. Nepalese migrants in Japan: what is holding them back in getting access to healthcare? *PLOS One*. 2018;13(9):e0203645. doi:10.1371/journal.pone.0203645.
22. Adhikary P, Aryal N, Dhungana RR, Kc RK, Regmi PR, Wickramage KP et al. Accessing health services in India: experiences of seasonal migrants returning to Nepal. *BMC Health Serv Res*. 2020;20(1):992. doi:10.1186/s12913-020-05846-7.
23. Jaeger FN, Pellaud N, Laville B, Klauser P. The migration-related language barrier and professional interpreter use in primary health care in Switzerland. *BMC Health Serv Res*. 2019;19(1):429. doi:10.1186/s12913-019-4164-4.
24. The risks that refugees with disabilities face in Turkey: how to mitigate risks and challenges to shape an apt humanitarian response. York: Euro-Mediterranean for Human Rights Monitor, York University; 2020 (<https://euromedmonitor.org/uploads/reports/pwden.pdf>, accessed 7 April 2022).
25. Tanabe M, Pearce E, Krause SK. “Nothing about us, without us”: conducting participatory action research among and with persons with disabilities in humanitarian settings. *Action Res*. 2018;16(3):280–98. doi:10.1177/1476750316685878.
26. Khoo BP, Lee HY, Zhou AQ, Shin J, Lee RM. Healthcare providers’ perspectives on parental health literacy and child health outcomes among Southeast Asian American immigrants and refugees. *Child Youth Serv Rev*. 2016;67:220–9. doi:10.1016/j.childyouth.2016.06.006.
27. Forney-Gorman A, Kozhimannil KB. Differences in cervical cancer screening between African-American versus African-born black women in the United States. *J Immigr Minor Health*. 2016;18(6):1371–7. doi:10.1007/s10903-015-0267-0.
28. Lugova H, Samad N, Haque M. Sexual and gender-based violence among refugees and internally displaced persons in the Democratic Republic of the Congo: post-conflict scenario. *Risk Manag Healthc Policy*. 2020;13:2937–48. doi:10.2147/RMHP.S283698.
29. Lilleston P, Winograd L, Ahmed S, Prime DS, Alam DA, Stoebenau K et al. Evaluation of a mobile approach to gender-based violence service delivery among Syrian refugees in Lebanon. *Health Policy Plan*. 2018;33(7):767–76. doi:10.1093/heapol/czy050.
30. Gausman J, Othman A, Dababneh A, Dabobe M, Hamad I, Daas I et al. A social-ecological examination into the research, policy and health service delivery environment related to early marriage and sexual and gender-based violence among youth in Jordan. *BMC Int Health Hum Rights*. 2020;20(1):16. doi:10.1186/s12914-020-00234-y.
31. Chynoweth SK, Buscher D, Martin S, Zwi AB. A social ecological approach to understanding service utilization barriers among male survivors of sexual violence in three refugee settings: a qualitative exploratory study. *Confl Health*. 2020;14(1):43. doi:10.1186/s13031-020-00288-8.
32. Tol WA, Augustinavicius J, Carswell K, Brown FL, Adaku A, Leku MR et al. Translation, adaptation, and pilot of a guided self-help intervention to reduce psychological distress in South Sudanese refugees in Uganda. *Glob Ment Health*. 2018;5:e25. doi:10.1017/gmh.2018.14.
33. Yassin N, Taha AA, Ghantous Z, Atoui MM, Forgione F. Evaluating a mental health program for Palestinian refugees in Lebanon. *J Immigr Minor Health*. 2018;20(2):388–98. doi:10.1007/s10903-017-0657-6.
34. Akhtar A, Engels M, Bawaneh A, Bird M, Bryant R, Cuijpers P et al. Cultural adaptation of a low-intensity group psychological intervention for Syrian refugees. *Intervention*. 2021;19(1):48–57. doi:10.4103/INTV.INTV_38_20.
35. Noubani A, Diaconu K, Ghandour L, El Koussa M, Loffreda G, Saleh S. A community-based system dynamics approach for understanding factors affecting mental health and health seeking behaviors in Beirut and Beqaa regions of Lebanon. *Glob Health*. 2020;16(1):28. doi:10.1186/s12992-020-00556-5.
36. Kesornsri S, Sitthimongkol Y, Punpuing S, Vongsirimas N, Hegadoren KH. Mental health and related factors among migrants from Myanmar in Thailand. *J Popul Soc Stud*. 2019 Mar 28;27(2):124–38. doi:10.25133/JPSSv27n2.008.
37. Radi S. Hospital interactions in Morocco: access to health care policies from a patient perspective. *Mondes Dev*. 2019;187(3):71–84. doi:10.3917/med.187.0071.
38. Llanes-García YE, Ghys T. Barriers to access healthcare for Middle American migrants during transit in Mexico. *Política Glob Ciudad*. 2021;7(13):182–204. doi:10.29105/10.29105/pgc7.13-7.
39. Borrell C, Palència L, Bartoll X, Ikram U, Malmusi D. Perceived discrimination and health among immigrants in Europe according to national integration policies. *Int J Environ Res Public Health*. 2015;12(9):10687–99. doi:10.3390/ijerph120910687.
40. Guruge S, Sidani S, Illesinghe V, Younes R, Bukhari H, Altenberg J et al. Healthcare needs and health service utilization by Syrian refugee women in Toronto. *Confl Health*. 2018;12(1):46. doi:10.1186/s13031-018-0181-x.
41. Torres CA, Thorn BE, Kapoor S, DeMonte C. An examination of cultural values and pain management in foreign-born Spanish-speaking Hispanics seeking care at a federally qualified health center. *Pain Med*. 2017;18(11):2058–69. doi:10.1093/pm/pnw315.

42. Arrieta JDR. Banca, salud y estímulo del empleo: servicios públicos desde la óptica de los refugiados y solicitantes en Costa Rica [Banking, health and employment stimulus: public services from the perspective of refugees and asylum seekers in Costa Rica]. *Rev Cienc Soc.* 2017;155:111–29 (in Spanish). doi:10.15517/RCS.V01155.30258.
43. Gurrola MA, Ayón C. Immigration policies and social determinants of health: is immigrants' health at risk? *Race Soc Probl.* 2018;10(3):209–20. doi:10.1007/s12552-018-9239-z.
44. Dzúrová D, Winkler P, Drbohlav D. Immigrants' access to health insurance: no equality without awareness. *Int J Environ Res Public Health.* 2014;11(7):7144–53. doi:10.3390/ijerph110707144.
45. Faturiyeye I, Karletsos D, Ntene-Sealiete K, Musekiwa A, Khabo M, Mariti M et al. Access to HIV care and treatment for migrants between Lesotho and South Africa: a mixed methods study. *BMC Public Health.* 2018;18(1):668. doi:10.1186/s12889-018-5594-3.
46. Lohiniva AL, Mokhtar A, Azer A, Elmoghazy E, Kamal E, Benkirane M et al. Qualitative interviews with non-national tuberculosis patients in Cairo, Egypt: understanding the financial and social cost of treatment adherence. *Health Soc Care Community.* 2016;24(6):e164–72. doi:10.1111/hsc.12280.
47. Fernandez B. Health inequities faced by Ethiopian migrant domestic workers in Lebanon. *Health Place.* 2018;50:154–61. doi:10.1016/j.healthplace.2018.01.008.
48. Rivenbark JG, Ichou M. Discrimination in healthcare as a barrier to care: experiences of socially disadvantaged populations in France from a nationally representative survey. *BMC Public Health.* 2020;20(1):31. doi:10.1186/s12889-019-8124-z.
49. Yarnell CJ, Fu L, Bonares MJ, Nayfeh A, Fowler RA. Association between Chinese or South Asian ethnicity and end-of-life care in Ontario, Canada. *CMAJ.* 2020;192(11):E266–74. doi:10.1503/cmaj.190655.
50. Mohammadi S, Gargari SS, Fallahian M, Källerstål C, Ziaei S, Essén B. Afghan migrants face more suboptimal care than natives: a maternal near-miss audit study at university hospitals in Tehran, Iran. *BMC Pregnancy Childbirth.* 2017;17(1):64. doi:10.1186/s12884-017-1239-2.
51. Yu M, Kelley AT, Morgan AU, Duong A, Mahajan A, Gipson JD. Challenges for adult undocumented immigrants in accessing primary care: a qualitative study of health care workers in Los Angeles County. *Health Equity.* 2020;4(1):366–74. doi:10.1089/heq.2020.0036.
52. Müllerschön J, Koschollek C, Santos-Hövenner C, Kuehne A, Müller-Nordhorn J, Bremer V. Impact of health insurance status among migrants from sub-Saharan Africa on access to health care and HIV testing in Germany: a participatory cross-sectional survey. *BMC Int Health Hum Rights.* 2019;19(1):10. doi:10.1186/s12914-019-0189-3.
53. Kalengayi FNK, Hurtig A-K, Ahlm C, Krantz I. Fear of deportation may limit legal immigrants' access to HIV/AIDS-related care: a survey of Swedish language school students in northern Sweden. *J Immigr Minor Health.* 2012;14(1):39–47. doi:10.1007/s10903-011-9509-y.
54. Mikhaylova YuV, Nechaeva OB, Shikina IB, Sorokin VN. Influence of migration factor on TB and HIV epidemic situation in Russia. *Social Asp Popul Health.* 2018;(62):4. doi:10.21045/2071-5021-2018-62-4-4.
55. Kiyutin v. Russia, 2700/10. Strasbourg: European Court of Human Rights; 2011 (<https://hudoc.echr.coe.int/Eng#%22itemid%22:%222001-103904%22>], accessed 16 April 2022).
56. Kashnitsky D, Richter JM. 'In short, we will deport you': disrupted temporalities of migrants with HIV in Russia. *Glob Public Health.* 2021;11:1–13. doi:10.1080/17441692.2021.2002923.
57. Deported, denied access, discriminated against because of their HIV status. Geneva: Joint United Nations Programme on HIV/AIDS; 2019 (https://www.unaids.org/en/resources/presscentre/featurestories/2019/june/20190627_deported, accessed 7 April 2022).
58. UNAIDS and UNDP call on 48 countries and territories to remove all HIV-related travel restrictions. Geneva: Joint United Nations Programme on HIV/AIDS; 2019 (https://www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2019/june/20190627_hiv-related-travel-restrictions, accessed 7 April 2022).
59. Malmusi D. Immigrants' health and health inequality by type of integration policies in European countries. *Eur J Public Health.* 2015;25(2):293–9. doi:10.1093/eurpub/cku156.
60. Bailey R. Health care management in Australia's and New Zealand's seasonal worker schemes. Canberra: Department of Pacific Affairs (Working Paper 2020/2; https://dpa.bellschool.anu.edu.au/sites/default/files/publications/attachments/2020-03/dpa_working_paper_2020_2_bailey_final.pdf, accessed 7 April 2022).
61. Maneesh P, Divyarani R, Remya S, Nisha P, Vilvijayan C, Dhinakaran D. Barriers to healthcare for Sri Lankan Tamil refugees in Tamil Nadu, India. *Turk J Comput Math Educ.* 2021;12:4075–83 (<https://www.turcomat.org/index.php/turkbilmat/article/download/8213/6416/14730>, accessed 7 April 2022).
62. Riley A, Varner A, Ventevogel P, Hasan MMT, Welton-Mitchell C. Daily stressors, trauma exposure, and mental health among stateless Rohingya refugees in Bangladesh. *Transcult Psychiatry.* 2017;54(3):304–31. doi:10.1177/1363461517705571.

63. Tarannum S, Elshazly M, Harlass S, Ventevogel P. Integrating mental health into primary health care in Rohingya refugee settings in Bangladesh: experiences of UNHCR. *Intervention*. 2019;17(2):130–9. doi:10.4103/INTV_INTV_34_19.
64. Alghadir AH, Zafar H, Iqbal ZA. Experiences of overseas trained physical therapists working in Saudi Arabia: an observational study. *Int J Environ Res Public Health*. 2020;17(10):3406. doi:10.3390/ijerph17103406.
65. Fragkiadaki E, Ghafoori B, Triliva S, Sfakianaki R. A pilot study of a trauma training for healthcare workers serving refugees in Greece: perceptions of feasibility of task-shifting trauma informed care. *J Aggress Maltreatment Trauma*. 2020;29(4):442–60. doi:10.1080/10926771.2019.1662866.
66. Al-Rousan T, Schwabkey Z, Jirmanus L, Nelson BD. Health needs and priorities of Syrian refugees in camps and urban settings in Jordan: perspectives of refugees and health care providers. *East Mediterr Health J*. 2018;24(3):243–53. doi:10.26719/2018.24.3.243.
67. White JA, Levin J, Rispel LC. Migrants' perceptions of health system responsiveness and satisfaction with health workers in a South African province. *Glob Health Action*. 2020;13(1):1850058. doi:10.1080/16549716.2020.1850058.
68. Modesti PA, Calabrese M, Marzotti I, Bing H, Malandrino D, Boddì M et al. Prevalence, awareness, treatment, and control of hypertension among Chinese first-generation migrants and Italians in Prato, Italy: the CHIP study. *Int J Hypertens*. 2017;2017:6402085. doi:10.1155/2017/6402085.
69. McMichael C, Healy J. Health equity and migrants in the Greater Mekong Subregion. *Glob Health Action*. 2017;10(1):1271594. doi:10.1080/16549716.2017.1271594.
70. Ghahari S, Burnett S, Alexander L. Development and pilot testing of a health education program to improve immigrants' access to Canadian health services. *BMC Health Serv Res*. 2020;20(1):321. doi:10.1186/s12913-020-05180-y.
71. DeCamp LR, Godage SK, Araujo DV, Cortez JD, Wu L, Psoter KJ et al. A texting intervention in Latino families to reduce ED use: a randomized trial. *Pediatrics*. 2020;145(1):e20191405. doi:10.1542/peds.2019-1405.
72. Chepo M, Astorga-Pinto S, Cabieses B. Atención inicial de migrantes en Chile: iniciativa en atención primaria de salud a un año de su implementación [Initial care for migrants in Chile: status of a primary health care initiative after one year of implementation]. 2019;43:e71 (in Spanish). doi:10.26633/RPSP.2019.71.
73. Agarwal G, Bhandari M, Pirrie M, Angeles R, Marzaneck F. Feasibility of implementing a community cardiovascular health promotion program with paramedics and volunteers in a South Asian population. *BMC Public Health*. 2020;20(1):1618. doi:10.1186/s12889-020-09728-9.
74. Choi YJ, Orpinas P, Kim I, Ko KS. Korean clergy for healthy families: online intervention for preventing intimate partner violence. *Glob Health Promot*. 2019;26(4):25–32. doi:10.1177/1757975917747878.
75. Lee H, Ghebre R, Le C, Jang YJ, Sharratt M, Yee D. Mobile phone multilevel and multimedia messaging intervention for breast cancer screening: pilot randomized controlled trial. *JMIR mHealth uHealth*. 2017;5(11):e154. doi:10.2196/mhealth.7091.
76. Agyemang C, Meeks K, Boateng R, Beune E. Your health is your wealth: faith-based community action on the health of African migrant communities in Amsterdam. *J Epidemiol Community Health*. 2018;72(5):409–12. doi:10.1136/jech-2017-209130.
77. Dewachi O, Skelton M, Nguyen V-K, Fouad FM, Sitta GA, Maasri Z et al. Changing therapeutic geographies of the Iraqi and Syrian wars. *Lancet*. 2014;383(9915):449–57. doi:10.1016/S0140-6736(13)62299-0.
78. Rouland B, Jarraya M. From medical tourism to regionalism from the bottom up: emerging transnational spaces of care between Libya and Tunisia. *J Ethn Migr Stud*. 2020;46(20):4248–63. doi:10.1080/1369183X.2019.1597475.
79. Public health guidance on screening and vaccination for infectious diseases in newly arrived migrants within the EU/EEA. Stockholm: European Centre for Disease Prevention and Control; 2018 (<https://www.ecdc.europa.eu/sites/default/files/documents/Public%20health%20guidance%20on%20screening%20and%20vaccination%20of%20migrants%20in%20the%20EU%20EEA.pdf>, accessed 7 April 2022).
80. Hargreaves S, Rustage K, Nellums LB, Powis J, Milburn J, Severoni S et al. What constitutes an effective and efficient package of services for the prevention, diagnosis, treatment and care of tuberculosis among refugees and migrants in the WHO European Region? Copenhagen: WHO Regional Office for Europe; 2018 (Health Evidence Network synthesis report 56; <https://apps.who.int/iris/handle/10665/326256>, accessed 7 April 2022).
81. Shedrawy J, Deogan C, Öhd JN, Hergens M-P, Bruchfeld J, Jonsson J et al. Cost-effectiveness of the latent tuberculosis screening program for migrants in Stockholm Region. *Eur J Health Econ*. 2021;22(3):445–54. doi:10.1007/s10198-021-01265-5.
82. Bwire G, Orach CG, Aceng FL, Arianitwe SE, Matsekete D, Tumusherure E et al. Refugee settlements and cholera risks in Uganda, 2016–2019. *Am J Trop Med Hyg*. 2021;104(4):1225–31. doi:10.4269/ajtmh.20-0741.
83. Ndombo PK, Ndze VN, Mbarga FD, Anderson R, Acho A, Chia JE et al. Molecular characterisation of measles virus strains among refugees from Central African Republic in Cameroon in 2014. *Epidemiol Infect*. 2018;146(3):319–23. doi:10.1017/S0950268817002990.

84. Isadru VR, Nanyonga RC, Alege JB. Health facilities' readiness to manage hypertension and diabetes cases at primary health facilities in Bidibidi refugee settlement, Yumbe District, Uganda. *J Trop Med*. 2021;2021:e1415794. doi:10.1155/2021/1415794.
85. Gottlieb N, Weinstein T, Mink J, Ghebregziabher HM, Sultan Z, Reichlin R. Applying a community-based participatory research approach to improve access to healthcare for Eritrean asylum-seekers in Israel: a pilot study. *Isr J Health Policy Res*. 2017;6(1):61. doi:10.1186/s13584-017-0185-9.
86. Dumit NY, Honein-AbouHaidar G. The impact of the Syrian refugee crisis on nurses and the healthcare system in Lebanon: a qualitative exploratory study. *J Nurs Scholarsh*. 2019;51(3):289–98. doi:10.1111/jnu.12479.
87. Veliz-Rojas L, Bianchetti-Saavedra AF, Silva-Fernández M. Competencias interculturales en la atención primaria de salud: un desafío para la educación superior frente a contextos de diversidad cultural [Intercultural skills in primary health care: a challenge for higher education in contexts of cultural diversity]. *Cad Saúde Publica*. 2019;35(1):e00120818 (in Spanish). doi:10.1590/0102-311x00120818.
88. Mengesha ZB, Perz J, Dune T, Ussher J. Preparedness of health care professionals for delivering sexual and reproductive health care to refugee and migrant women: a mixed methods study. *Int J Environ Res Public Health*. 2018;15(1):174. doi:10.3390/ijerph15010174.
89. Marzouk M, Kelley M, Fadhil I, Slama S, Longuere KS, Ariana P et al. "If I have a cancer, it is not my fault I am a refugee": a qualitative study with expert stakeholders on cancer care management for Syrian refugees in Jordan. *PLOS One*. 2019;14(9):e0222496. doi:10.1371/journal.pone.0222496.
90. McHenry MS, Nutakki K, Swigonski NL. Effectiveness of cross-cultural education for medical residents caring for Burmese refugees. *Educ Health*. 2016;29(3):250–4. doi:10.4103/1357-6283.204217.
91. Gagliardi AR, Kim C, Jameel B. Physician behaviours that optimize patient-centred care: focus groups with migrant women. *Health Expect*. 2020;23(5):1280–8. doi:10.1111/hex.13110.
92. Fellmeth G, Plugge E, Fazel M, Nosten S, Oo MM, Pimanpanarak M et al. Perinatal depression in migrant and refugee women on the Thai–Myanmar border: does social support matter? *Philos Trans R Soc B Biol Sci*. 2021;376(1827):20200030. doi:10.1098/rstb.2020.0030.
93. Young S, Guo KL. Cultural diversity training: the necessity of cultural competence for health care providers and in nursing practice. *Health Care Manag*. 2016;35(2):94–102. doi:10.1097/HCM.000000000000100.
94. Fair F, Soltani H, Raben L, van Streun Y, Sioti E, Papadakaki M et al. Midwives' experiences of cultural competency training and providing perinatal care for migrant women a mixed methods study: operational refugee and migrant maternal approach (ORAMMA) project. *BMC Pregnancy Childbirth*. 2021;21(1):340. doi:10.1186/s12884-021-03799-1.
95. Bapolisi A, Crabtree K, Jarolimova J, Kelly C, Kentoffio K, Patel P et al. Assessment of attitudes and targeted educational needs for refugee care providers in a Ugandan hospital. *Int J Med Educ*. 2018;9:221–5. doi:10.5116/ijme.5b64.9630.
96. Richter S, Vallianatos H, Green J, Obuekwe C. Intersection of migration and access to health care: experiences and perceptions of female economic migrants in Canada. *Int J Environ Res Public Health*. 2020;17(10):3682. doi:10.3390/ijerph17103682.
97. Al Shdaifat A, Zink T. Pilot study to build capacity for family medicine with abbreviated, low-cost training programme with minimal impact on patient care for a cohort of 84 general practitioners caring for Palestinian refugees in Jordan. *BMJ Open*. 2019;9(8):e028240. doi:10.1136/bmjopen-2018-028240.
98. Abudari G, Hazeim H, Ginete G. Caring for terminally ill Muslim patients: lived experiences of non-Muslim nurses. *Palliat Support Care*. 2016;14(6):599–611. doi:10.1017/S1478951516000249.
99. Brunton M, Cook C, Kuzemski D, Brownie S, Thirlwall A. Internationally qualified nurse communication: a qualitative cross country study. *J Clin Nurs*. 2019;28(19–20):3669–79. doi:10.1111/jocn.14968.
100. Albougami AS, Alotaibi JS, Alsharari AF, Albagawi BS, Almazan JU, Maniago JD et al. Cultural competence and perception of patient-centered care among non-Muslim expatriate nurses in Saudi Arabia: a cross sectional study. *Pak J Med Health Sci*. 2019;13(3):933–8 (https://www.pjmhsonline.com/2019/july_sep/pdf/933.pdf, accessed 8 April 2022).
101. Kheang ST, Lin MA, Lwin S, Naing YH, Yarzar P, Kak N. Malaria case detection among mobile populations and migrant workers in Myanmar: comparison of 3 service delivery approaches. *Glob Health Sci Pract*. 2018;6(2):384–9. doi:10.9745/GHSP-D-17-00318.
102. Alpern JD, Davey CS, Song J. Perceived barriers to success for resident physicians interested in refugee and migrant health. *BMC Med Educ*. 2016;16:178. doi:10.1186/s12909-016-0696-z.
103. Reece MJ, Rubin S. Qualitative pilot study: challenges for primary healthcare providers caring for refugees in Northeast Ohio. *Cureus*. 2021;13(1):e12572. doi:10.7759/cureus.12572.
104. de Arruda-Barbosa L, Sales AFG, de Souza ILL. Reflexos da imigração venezuelana na assistência em saúde no maior hospital de Roraima: análise qualitativa [The impact of Venezuelan immigration on health care in Roraima's largest hospital: qualitative analysis]. *Saúde Soc*. 2020;29(2):e190730 (in Portuguese). doi:10.1590/S0104-12902020190730.

105. Schininá G, Nunes N, Birot P, Giardinelli L, Kios G. Mainstreaming mental health and psychosocial support in camp coordination and camp management. The experience of the International Organization for Migration in the north east of Nigeria and South Sudan. *Intervention*. 2016;14(3):232–44 (https://www.interventionjournal.com/sites/default/files/Mainstreaming_mental_health_and_psychosocial.7.pdf, accessed 8 April 2022).
106. Abbott KL, Woods CA, Halim DA, Qureshi HA. Pediatric care during a short-term medical mission to a Syrian refugee camp in northern Jordan. *Avicenna J Med*. 2017;7(4):176–81. doi:10.4103/ajm.AJM_100_17.
107. Kosiyaporn H, Julchoo S, Phaiyaron M, Sinam P, Kunpeuk W, Pudpong N et al. Strengthening the migrant-friendliness of Thai health services through interpretation and cultural mediation: a system analysis. *Glob Health Res Policy*. 2020;5(1):53. doi:10.1186/s41256-020-00181-0.
108. Juon H-S, Strong C, Kim F, Park E, Lee S. Lay health worker intervention improved compliance with hepatitis B vaccination in Asian Americans: randomized controlled trial. *PLOS One*. 2016;11(9):e0162683. doi:10.1371/journal.pone.0162683.
109. Verrept H. What are the roles of intercultural mediators in health care and what is the evidence on their contributions and effectiveness in improving accessibility and quality of care for refugees and migrants in the WHO European Region? Copenhagen: WHO Regional Office for Europe; 2019 (<https://apps.who.int/iris/handle/10665/327321>, accessed 8 April 2022).
110. Naal H, Mendelsohn R, Brome D, Noubani A, Nabulsi D, Muhieddine D et al. Evaluating a capacity building program on women's health for displaced community health workers in fragile settings in Lebanon. *Hum Resour Health*. 2021;19(1):37. doi:10.1186/s12960-021-00585-0.
111. Izugbara C, Muthuri S, Muuo S, Egesa C, Franchi G, McAlpine A et al. "They say our work is not halal": experiences and challenges of refugee community workers involved in gender-based violence prevention and care in Dadaab, Kenya. *J Refug Stud*. 2020;33(3):521–36. doi:10.1093/jrs/fey055.
112. Asia-Pacific migration report 2020: assessing implementation of the global compact for migration. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific; 2020 (<https://www.unescap.org/resources/asia-pacific-migration-report-2020>, accessed 8 April 2022).
113. Regolamento recante disposizioni sul funzionamento e l'organizzazione dell'Istituto Nazionale per la promozione della salute delle popolazioni migranti e per il contrasto delle malattie della povertà [Regulation outlining provisions on the functioning and organisation of the National Institute for Health Promotion of Migrant Populations and for combating poverty-related diseases]. Rome: Ministero della Salute; 2013 (in Italian; <https://www.inmp.it/index.php/ita/content/download/14884/119029/file/Decreto%2022%20febbraio%202013%20n.%2056.pdf>, accessed 8 April 2022).
114. Losco LN, Gemma SFB. Health subjects, territory agents: the community health agent in immigrant primary care. *Interface*. 2019;23:e180589. doi:10.1590/Interface.180589.
115. Nguyen TT, Tsoh JY, Woo K, Stewart SL, Le GM, Burke A et al. Colorectal cancer screening and Chinese Americans: efficacy of lay health worker outreach and print materials. *Am J Prev Med*. 2017;52(3):e67–76. doi:10.1016/j.amepre.2016.10.003.
116. Ross SET, Gibbs BB, Documet PI, Pate RR. ANDALE Pittsburgh: results of a promotora-led, home-based intervention to promote a healthy weight in Latino preschool children. *BMC Public Health*. 2018;18(1):360. doi:10.1186/s12889-018-5266-3.
117. Sepúlveda C, Cabieses B. Rol del facilitador intercultural para migrantes internacionales en centros de salud chilenos: perspectivas de cuatro grupos de actores clave [Role of the intercultural facilitator for international migrants in Chilean health centres: perspectives from four groups of key actors]. *Rev Peru Med Exp Salud Publica*. 2019;36(4):592–600 (in Spanish). doi:10.17843/rpmesp.2019.364.4683.
118. MacFarlane A, Huschke S, Pottie K, Hauck FR, Griswold K, Harris MF. Barriers to the use of trained interpreters in consultations with refugees in four resettlement countries: a qualitative analysis using normalisation process theory. *BMC Fam Pract*. 2020;21(1):259. doi:10.1186/s12875-020-01314-7.
119. Ursu P, Nitzan D, Şener S, Sucaklı B, Şimşek M, Beqiri M et al. Protracted emergency in Turkey: supporting provision of essential health services to Syrians under temporary protection. *Public Health Panor*. 2018;04(01):120–5 (<https://apps.who.int/iris/handle/10665/325072>, accessed 8 April 2022).
120. Oakley S, Grealish L, Coyne E. Telling their story: a qualitative descriptive study of the lived experience of expatriate palliative care nurses in the United Arab Emirates. *Eur J Oncol Nurs*. 2020;48:101793. doi:10.1016/j.ejon.2020.101793.
121. World Refugee Day: WHO training enables Syrian doctors and nurses to provide health care in Turkey. Copenhagen: WHO Regional Office for Europe; 2017 (<https://www.euro.who.int/en/countries/turkey/news/news/2017/06/world-refugee-day-who-training-enables-syrian-doctors-and-nurses-to-provide-health-care-in-turkey>, accessed 8 April 2022).
122. Primary health care in the Western Pacific Region: looking back and future directions. Manila: WHO Regional Office for the Western Pacific; 2018 (<https://apps.who.int/iris/handle/10665/276248>, accessed 8 April 2022).
123. Healee D, Inada K. Working with difference: thematic concepts of Japanese nurses working in New Zealand. *Nurs Health Sci*. 2016;18(1):91–6. doi:10.1111/nhs.12246.
124. Jenkins B, Huntington A. "We are the international nurses": an exploration of internationally qualified nurses' experiences of transitioning to New Zealand and working in aged care. *Nurs Pract N Z*. 2016;32(2):9–20. doi:10.36951/ngpxnz.2016.006.

125. Joseph B, Olosoji M, Moss C, Cross W. Transition experiences of Indian nurses into Australian mental health system. *J Transcult Nurs.* 2022;33(1):41–8. doi:10.1177/10436596211026373.
126. Timilsina Bhandari KK, Xiao LD, Belan I. Job satisfaction of overseas-qualified nurses working in Australian hospitals. *Int Nurs Rev.* 2015;62(1):64–74. doi:10.1111/inr.12146.
127. Aggar C, Shinnars L, Thomas T, Stockhausen L. Experiences of internationally qualified registered nurses enrolled in a bridging program in Australia: a pilot study. *Collegian.* 2020;27(3):298–303. doi:10.1016/j.colegn.2019.09.003.
128. Marcus K, Purwaningrum F, Short S. Towards more effective health workforce governance: the case of overseas-trained doctors. *Aust J Rural Health.* 2021;29(1):52–60. doi:10.1111/ajr.12692.
129. Wells R, Abo-Hilal M, Steel Z, Hunt C, Plested B, Hassan M et al. Community readiness in the Syrian refugee community in Jordan: a rapid ecological assessment tool to build psychosocial service capacity. *Am J Orthopsychiatry.* 2020;90(2):212–22. doi:10.1037/ort0000404.
130. Gatter M. Preserving order: narrating resilience as threat in Jordan's Azraq refugee camp. *Territ Polit Gov.* 2021;1:1–17. doi:10.1080/21622671.2020.1860812.
131. Abdalla FM, Omar MA, Badr EE. Contribution of Sudanese medical diaspora to the healthcare delivery system in Sudan: exploring options and barriers. *Hum Resour Health.* 2016;14:28. doi:10.1186/s12960-016-0123-x.
132. Saluja S, Rudolfson N, Massenburg BB, Meara JG, Shrimpe MG. The impact of physician migration on mortality in low and middle-income countries: An economic modelling study. *BMJ Glob Health.* 2020;5(1):e001535. doi:10.1136/bmjgh-2019-001535.
133. Policy brief for the global policy advisory council: the Gulf Cooperation Council (GCC) and health worker migration. Washington (DC): Aspen Institute; 2008 (<https://www.aspeninstitute.org/wp-content/uploads/files/content/images/GCC%20and%20HWM%20Policy%20Brief.pdf>, accessed 8 April 2022).
134. Kurniati A, Chen C-M, Efendi F, Ogawa R. A deskilling and challenging journey: the lived experience of Indonesian nurse returnees. *Int Nurs Rev.* 2017;64(4):494–501. doi:10.1111/inr.12352.
135. Tangcharoensathien V, Travis P, Tancarino AS, Sawaengdee K, Choedon Y, Hassan S et al. Managing in- and out-migration of health workforce in selected countries in South East Asia region. *Int J Health Policy Manag.* 2018;7(2):137–43. doi:10.15171/ijhpm.2017.49.
136. Efendi F, Oda H, Kurniati A, Hadjo SS, Nadatien I, Ritonga IL. Determinants of nursing students' intention to migrate overseas to work and implications for sustainability: the case of Indonesian students. *Nurs Health Sci.* 2021;23(1):103–12. doi:10.1111/nhs.12757.
137. Contribution of migrant doctors and nurses to tackling COVID-19 crisis in OECD countries. Paris: Organisation for Economic Co-operation and Development; 2020 (https://www.oecd-ilibrary.org/social-issues-migration-health/contribution-of-migrant-doctors-and-nurses-to-tackling-covid-19-crisis-in-oecd-countries_2f7bace2-en, accessed 8 April 2022).
138. Botezat A, Ramos R. Physicians' brain drain - a gravity model of migration flows. *Glob Health.* 2020;16(1):7. doi:10.1186/s12992-019-0536-0.
139. Motlhatlhedhi K, Nkomazana O. Home is home: Botswana's return migrant health workers. *PLOS One.* 2018;13(11):e0206969. doi:10.1371/journal.pone.0206969.
140. WHO guideline on health workforce development, attraction, recruitment and retention in rural and remote areas: a summary. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/handle/10665/341130>, accessed 8 April 2022).
141. Recognition of qualifications and competences of migrants. Geneva: International Organization for Migration; 2015 (https://publications.iom.int/system/files/pdf/recognition_qualifications_competencesofmigrants.pdf, accessed 16 April 2022).
142. What a waste: ensure migrants and refugees' qualifications and prior learning are recognized. Paris: United Nations Educational, Scientific and Cultural Organization; 2018 (<https://unesdoc.unesco.org/ark:/48223/pf0000366312>, accessed 16 April 2022).
143. Human mobility, shared opportunities: a review of the 2009 human development report and the way ahead. New York: United Nations Development Programme; 2020 (<https://www.undp.org/sites/g/files/zskgke326/files/publications/UNDP-IOM-Human-Mobility-Shared-Opportunities.pdf>, accessed 8 April 2022).
144. Honein-Abouhaidar G, Noubani A, El Arnaout N, Ismail S, Nimer H, Menassa M et al. Informal healthcare provision in Lebanon: an adaptive mechanism among displaced Syrian health professionals in a protracted crisis. *Confl Health.* 2019;13(1):40. doi:10.1186/s13031-019-0224-y.
145. López-Entrambasaguas OM, Martínez-Linares JM, Linares-Abad M, Calero-García MJ. Is it possible to become a nurse in a refugee camp? *Int J Environ Res Public Health.* 2019;16(18):3414. doi:10.3390/ijerph16183414.

146. Resolution WHA63.16. WHO global code of practice on the international recruitment of health personnel. In: Sixty-third World Health Assembly, Geneva, 17–21 May 2010. Resolutions and decisions, annexes. Geneva: World Health Organization; 2010:31 (WHA63/2010/REC/1; https://apps.who.int/gb/ebwha/pdf_files/WHA63-REC1/WHA63_REC1-en.pdf).
147. Resolution WHA69.19. Global strategy on human resources for health: workforce 2030. In: Sixty-ninth World Health Assembly, Geneva, 23–28 May 2016. Resolutions and decisions, annexes. Geneva: World Health Organization; 2016:43–46 (WHA69/2016/REC/1; https://apps.who.int/gb/ebwha/pdf_files/WHA69-REC1/A69_2016_REC1-en.pdf#page=1).
148. WHO global code of practice on the international recruitment of health personnel. Geneva: World Health Organization; 2021 (<https://www.who.int/publications/m/item/nri-2021>, accessed 16 April 2022).
149. Global strategy on human resources for health: workforce 2030. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/250368/>, accessed 16 April 2022).
150. National health workforce accounts: a handbook. Geneva: World Health Organization; 2017 (<https://apps.who.int/iris/handle/10665/259360>, accessed 16 April 2022).
151. Socha-Dietrich K, Dumont JC. International migration and movement of doctors to and within OECD countries - 2000 to 2018: developments in countries of destination and impact on countries of origin. Paris: Organisation for Economic Co-operation and Development; 2021 (OECD Health Working Papers no. 126; https://www.oecd-ilibrary.org/social-issues-migration-health/international-migration-and-movement-of-doctors-to-and-within-oecd-countries-2000-to-2018_7ca8643e-en, accessed 16 April 2022).
152. Ennis CA, Walton-Roberts M. Labour market regulation as global social policy: the case of nursing labour markets in Oman. *Glob Soc Policy*. 2018;18(2):169–88. doi:10.1177/1468018117737990.
153. AlRuthia Y, Alsenaidy MA, Alrabiah HK, AlMuhaissen A, Alshehri M. The status of licensed pharmacy workforce in Saudi Arabia: a 2030 economic vision perspective. *Hum Resour Health*. 2018;16(1):28. doi:10.1186/s12960-018-0294-8.
154. Gillani SW, Rahman SA, Mohammad Abdul MI, Sulaiman SAS. Assessment of community pharmacists' perceptions of healthcare services in Saudi Arabia. *J Pharm Health Serv Res*. 2017;8(4):269–74. doi:10.1111/jphs.12183.
155. Usman SK, Moosa S, Abdullah AS. Navigating the health system in responding to health workforce challenges of the COVID-19 pandemic: the case of Maldives (short case). *Int J Health Plann Manage*. 2021;36(suppl 1):182–9. doi:10.1002/hpm.3136.
156. Bellamy K, Ostini R, Martini N, Kairuz T. Insights from the coalface: barriers to accessing medicines and pharmacy services for resettled refugees from Africa. *Aust J Prim Health*. 2019;25(2):118–24. doi:10.1071/PY18092.
157. Fouratt CE, Voorend K. Esquivando al estado: prácticas privadas en el uso de los servicios de salud entre inmigrantes nicaragüenses en Costa Rica [Evading the state: private practices in the use of health services among Nicaraguan migrants in Costa Rica]. *Anu Estud Centroam*. 2019;45:373–403 (in Spanish). doi:10.15517/aeca.v45i0.36863.
158. Saiyed S, Siddiqui F, Gunja A. Providing healthcare in the camps of the Rohingya. London: British Medical Association; 2018 (<https://blogs.bmj.com/bmj/2018/12/31/providing-healthcare-in-the-camps-of-the-rohingya/>, accessed 8 April 2022).
159. Doherty M, Power L, Petrova M, Gunn S, Powell R, Coghlan R et al. Illness-related suffering and need for palliative care in Rohingya refugees and caregivers in Bangladesh: a cross-sectional study. *PLOS Med*. 2020;17(3):e1003011. doi:10.1371/journal.pmed.1003011.
160. Doherty M, Khan F. Neglected suffering: The unmet need for palliative care in Cox's Bazar. London: World Child Cancer; 2018 (<https://reliefweb.int/sites/reliefweb.int/files/resources/Neglected%20Suffering.pdf>, accessed 8 April 2022).
161. Al Alawneh M, Nuaimi N, Basheti IA. Pharmacists in humanitarian crisis settings: assessing the impact of pharmacist-delivered home medication management review service to Syrian refugees in Jordan. *Res Soc Adm Pharm*. 2019;15(2):164–72. doi:10.1016/j.sapharm.2018.04.008.
162. Sethi S, Jonsson R, Skaff R, Tyler F. Community-based noncommunicable disease care for Syrian refugees in Lebanon. *Glob Health Sci Pract*. 2017;5(3):495–506. doi:10.9745/GHSP-D-17-00043.
163. At a glance: health access and utilization survey among non-camp refugees in Lebanon – November 2015. Geneva: Office of the United Nations High Commissioner for Refugees, Public Health; 2015 (<https://reliefweb.int/report/lebanon/glance-health-access-and-utilization-survey-among-non-camp-refugees-lebanon-november>, accessed 29 April 2022).
164. At a glance: health access and utilization survey among Syrian refugees in Lebanon – September 2016. Geneva: Office of the United Nations High Commissioner for Refugees, Public Health; 2016 (<https://reliefweb.int/report/lebanon/glance-health-access-and-utilization-survey-among-syrian-refugees-lebanon-september>, accessed 29 April 2022).
165. Health access and utilization survey among Syrian refugees in Lebanon – November 2017. Geneva: Office of the United Nations High Commissioner for Refugees, Public Health; 2017 (<https://reliefweb.int/report/lebanon/health-access-and-utilization-survey-among-syrian-refugees-lebanon-november-2017>, accessed 29 April 2022).
166. Health access and utilization survey among Syrian refugees in Lebanon – December 2018. Geneva: Office of the United Nations High Commissioner for Refugees, Public Health; 2018 (<https://reliefweb.int/report/lebanon/health-access-and-utilization-survey-among-syrian-refugees-lebanon-december-2018>, accessed 29 April 2022).

167. Health access and utilization survey among Syrian refugees in Lebanon – November 2019. Geneva: Office of the United Nations High Commissioner for Refugees, Public Health; 2019 (<https://reliefweb.int/report/lebanon/health-access-and-utilization-survey-among-syrian-refugees-lebanon-november-2019>, accessed 29 April 2022).
168. United Nations High Commissioner for Refugees: Health access and utilization survey among Syrian refugees in Lebanon (October 2020). Geneva: Office of the United Nations High Commissioner for Refugees, Public Health; 2020 (<https://reliefweb.int/report/lebanon/unhcr-health-access-and-utilization-survey-among-syrian-refugees-lebanon-october-2020>, accessed 29 April 2022).
169. Hu J, Wang Z. Non-prescribed antibiotic use and general practitioner service utilisation among Chinese migrants in Australia. *Aust J Prim Health*. 2016;22(5):434–9. doi:10.1071/PY15076.
170. Rasheed NA, Hussein NR. Methicillin-resistant staphylococcus aureus carriage rate and molecular characterization of the staphylococcal cassette chromosome mec among Syrian refugees in Iraq. *Int J Infect Dis*. 2020;91:218–22. doi:10.1016/j.ijid.2019.12.006.
171. Masoumi-Asl H, Gouya MM, Rahbar M, Sabourian R. The epidemiology and antimicrobial resistance of cholera cases in Iran during 2013. *Iran J Microbiol*. 2016;8(4):232–7. PMID:28210461.
172. Bonniface M, Nambatya W, Rajab K. An evaluation of antibiotic prescribing practices in a rural refugee settlement district in Uganda. *Antibiotics*. 2021;10(2):172. doi:10.3390/antibiotics10020172.
173. Freidl GS, Tostmann A, Curvers M, Ruijs WLM, Smits G, Schepp R et al. Immunity against measles, mumps, rubella, varicella, diphtheria, tetanus, polio, hepatitis A and hepatitis B among adult asylum seekers in the Netherlands, 2016. *Vaccine*. 2018;36(12):1664–72. doi:10.1016/j.vaccine.2018.01.079.
174. Napolitano F, Gualdieri L, Santagati G, Angelillo IF. Knowledge and attitudes toward HPV infection and vaccination among immigrants and refugees in Italy. *Vaccine*. 2018;36(49):7536–41. doi:10.1016/j.vaccine.2018.10.050.
175. Jablonka A, Solbach P, Wöbse M, Manns MP, Schmidt RE, Wedemeyer H et al. Seroprevalence of antibodies and antigens against hepatitis A-E viruses in refugees and asylum seekers in Germany in 2015. *Eur J Gastroenterol Hepatol*. 2017;29(8):939–45. doi:10.1097/MEG.0000000000000889.
176. Hvass AMF, Norredam M, Sodemann M, Thomsen MK, Christian W. Are refugees arriving in Denmark an under-immunised group for measles? A cross-sectional serology study. *Vaccine*. 2020;38(13):2788–94. doi:10.1016/j.vaccine.2020.02.025.
177. Marek E, D’Cruz G, Katz Z, Szilard I, Berenyi K, Feiszt Z. Improving asylum seekers’ health awareness in a Hungarian refugee reception centre. *Health Promot Int*. 2019;34(5):e35–46. doi:10.1093/heapro/day066.
178. Fahrni O, Posfay-Barbe KM, Nm W. Immunisation against hepatitis A in migrant children: three vaccination strategies, a retrospective study. *Pediatr Infect Dis J*. 2020;39(2):164–9. doi:10.1097/INF.0000000000002526.
179. Spadea T, Fano V, Piovesan C, Rusciani R, Salamina G, Greco G et al. Early childhood vaccination coverage and timeliness by macro-area of origin in children born to foreign women residing in Italy. *Public Health*. 2021;196:138–45. doi:10.1016/j.puhe.2021.05.025.
180. Fabiani M, Fano V, Spadea T, Piovesan C, Bianconi E, Rusciani R et al. Comparison of early childhood vaccination coverage and timeliness between children born to Italian women and those born to foreign women residing in Italy: a multi-centre retrospective cohort study. *Vaccine*. 2019;37(16):2179–87. doi:10.1016/j.vaccine.2019.03.023.
181. Fabiani M, Di Napoli A, Riccardo F, Gargiulo L, Declich S, Petrelli A. [Differences in influenza vaccination coverage among subgroups of adult immigrants residing in Italy at risk for complications (2012–2013)]. *Epidemiol Prev*. 2017;41(3-4 suppl 1):50–6 (in Italian). doi:10.19191/EP17.3-4S1.P050.065.
182. Fabiani M, Riccardo F, Napoli AD, Gargiulo L, Declich S, Petrelli A. Differences in influenza vaccination coverage between adult immigrants and Italian citizens at risk for influenza-related complications: a cross-sectional study. *PLOS One*. 2016;11(11):e0166517. doi:10.1371/journal.pone.0166517.
183. De Vito E, de Waure C, Specchia ML, Ricciardi W. Public health aspects of migrant health: a review of the evidence on health status for undocumented migrants in the European region. Copenhagen: WHO Regional Office for Europe; 2015 (Health Evidence Network synthesis report 42; <https://apps.who.int/iris/handle/10665/326342>, accessed 8 April 2022).
184. De Vito E, Parente P, de Waure C, Poscia A, Ricciardi W. A review of evidence on equitable delivery, access and utilization of immunization services for migrants and refugees in the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2017 (Health Evidence Network synthesis report 53; <https://apps.who.int/iris/handle/10665/326288>, accessed 8 April 2022).
185. Jablonka A, Happle C, Grote U, Schleenvoigt BT, Hampel A, Dopfer C. Measles, mumps, rubella, and varicella seroprevalence in refugees in Germany in 2015. *Infection*. 2016;44(6):781–7. doi:10.1007/s15010-016-0926-7.
186. Hargreaves S, Nellums LB, Ramsay M, Saliba V, Majeed A, Mounier-Jack S et al. Who is responsible for the vaccination of migrants in Europe? *Lancet*. 2018;391(10132):1752–4. doi:10.1016/S0140-6736(18)30846-8.

187. Migration health annual report 2017. Geneva: International Organization for Migration; 2017 (https://publications.iom.int/system/files/pdf/mhd_ar2017.pdf, accessed 8 April 2022).
188. Kaji A, Parker DM, Chu CS, Thayatkawin W, Suelaor J, Charatrueangrongkun R et al. Immunisation coverage in migrant school children along the Thailand-Myanmar border. *J Immigr Minor Health*. 2016;18(5):1038–45. doi:10.1007/s10903-015-0294-x.
189. Harvey B, Dalal W, Amin F, McIntyre E, Ward S, Merrill RD et al. Planning and implementing a targeted polio vaccination campaign for Somali mobile populations in northeastern Kenya based on migration and settlement patterns. *Ethn Health*. 2022;27(4):817–32. doi:10.1080/13557858.2020.1838455.
190. Positioning demand generation in national EPI planning and implementation process: a quick guide to assist immunization and communication planners and managers. Brazzaville: WHO Regional Office for Africa; 2018 (<https://apps.who.int/iris/handle/10665/273314>, accessed 8 April 2022).
191. Masters NB, Wagner AL, Carlson BF, Muuo SW, Mutua MK, Boulton ML. Childhood vaccination in Kenya: socioeconomic determinants and disparities among the Somali ethnic community. *Int J Public Health*. 2019;64(3):313–22. doi:10.1007/s00038-018-1187-2.
192. Okiror S, Toure B, Davis B, Hydarov R, Ram B, Nwogu C et al. Lessons learnt from interregional and interagency collaboration in polio outbreak response in the Horn of Africa. *J Immunol Sci*. 2021;Special Issue(2):40–7. doi:10.29245/2578-3009/2021/S2.1112.
193. Brownwright TK, Dodson ZM, van Panhuis WG. Spatial clustering of measles vaccination coverage among children in sub-Saharan Africa. *BMC Public Health*. 2017;17(1):957. doi:10.1186/s12889-017-4961-9.
194. Ng AHC, Fobel R, Fobel C, Lamanna J, Rackus DG, Summers A et al. A digital microfluidic system for serological immunoassays in remote settings. *Sci Transl Med*. 2018;10(438):eaar6076. doi:10.1126/scitranslmed.aar6076.
195. Migration governance in the Caribbean: report on the island states of the commonwealth Caribbean. Geneva: International Organization for Migration; 2018 (https://caribbeanmigration.org/sites/default/files/repository/regional_report_on_migration_governance_in_the_island_states_of_the_commonwealth_caribbean.pdf, accessed 8 April 2022).
196. Allen EM, Lee HY, Pratt R, Vang H, Desai JR, Dube A et al. Facilitators and barriers of cervical cancer screening and human papilloma virus vaccination among Somali refugee women in the United States: a qualitative analysis. *J Transcult Nurs*. 2019;30(1):55–63. doi:10.1177/1043659618796909.
197. Mitchell T, Dalal W, Klosovsky A, Yen C, Phares C, Burkhardt M et al. An immunization program for US-bound refugees: development, challenges, and opportunities 2012–present. *Vaccine*. 2021;39(1):68–77. doi:10.1016/j.vaccine.2020.10.047.
198. Williams WW, Lu P-J, O'Halloran A, Kim DK, Grohskopf LA, Pilishvili T et al. Surveillance of vaccination coverage among adult populations: United States, 2015. *MMWR Surveill Summ*. 2017;66(11):1–28. doi:10.15585/mmwr.ss6611a1.
199. Abdi I, Menzies R, Seale H. Barriers and facilitators of immunisation in refugees and migrants in Australia: an east-African case study. *Vaccine*. 2019;37(44):6724–9. doi:10.1016/j.vaccine.2019.09.025.
200. Charania NA, Paynter J, Lee AC, Watson DG, Turner NM. Exploring immunisation inequities among migrant and refugee children in New Zealand. *Hum Vaccines Immunother*. 2018;14(12):3026–33. doi:10.1080/21645515.2018.1496769.
201. Chung HJ, Han SH, Kim H, Finkelstein JL. Childhood immunisations in China: disparities in health care access in children born to North Korean refugees. *BMC Int Health Hum Rights*. 2016;16(1):13. doi:10.1186/s12914-016-0085-z.
202. Charania NA, Paynter J, Lee AC, Watson DG, Turner NM. Vaccine-preventable disease-associated hospitalisations among migrant and non-migrant children in New Zealand. *J Immigr Minor Health*. 2020;22(2):223–31. doi:10.1007/s10903-019-00888-4.
203. Robertson T, Weiss W, Doocy S; Jordan Health Access Survey Team; Lebanon Health Access Survey Team. Challenges in estimating vaccine coverage in refugee and displaced populations: results from household surveys in Jordan and Lebanon. *Vaccines*. 2017;5(3):22. doi:10.3390/vaccines5030022.
204. Rossi R, Assaad R, Rebeschini A, Hamadeh R. Vaccination coverage cluster surveys in middle Dreib – Akkar, Lebanon: comparison of vaccination coverage in children aged 12–59 months pre- and post-vaccination campaign. *PLOS One*. 2016;11(12):e0168145. doi:10.1371/journal.pone.0168145.
205. SDG indicators: global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development. New York: United Nations Department of Economic and Social Affairs (<https://unstats.un.org/sdgs/indicators/indicators-list/>, accessed 30 April 2022).
206. Strategy and action plan for refugee and migrant health in the WHO European Region. In: Sixty-sixth Regional Committee for Europe: Copenhagen, 12–15 September 2016. Copenhagen: WHO Regional Office for Europe; 2016 (EUR/RC66/8; <https://apps.who.int/iris/handle/10665/338085>, accessed 9 April 2022).
207. Collection and integration of data on refugee and migrant health in the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2020 (<https://apps.who.int/iris/handle/10665/337694>, accessed 9 April 2022).


208. Global action plan on promoting the health of refugees and migrants, 2019–2023. In: Seventy-second World Health Assembly, Geneva, 20–28 May 2019. Resolutions and decisions, annexes. Geneva: World Health Organization; 2019:Annex 5 (WHA72/2019/REC/1; https://apps.who.int/gb/ebwha/pdf_files/WHA72-REC1/A72_2019_REC1-en.pdf).
209. Tschirhart N, Thi SS, Swe LL, Nosten F, Foster AM. Treating the invisible: gaps and opportunities for enhanced TB control along the Thailand-Myanmar border. *BMC Health Serv Res*. 2017;17(1):29. doi:10.1186/s12913-016-1954-9.
210. Health of refugees and migrants: regional situation analysis, practices, experiences, lessons learned and ways forward. New Delhi: WHO Regional Office for South-East Asia; 2018 (https://www.who.int/docs/default-source/documents/publications/health-of-refugees-and-migrants-searo-2018.pdf?sfvrsn=b7c1ad1f_1, accessed 29 April 2022).
211. Wen S, Harvard KE, Gueye CS, Canavati SE, Chancellor A, Ahmed B-N et al. Targeting populations at higher risk for malaria: a survey of national malaria elimination programmes in the Asia Pacific. *Malar J*. 2016;15(1):271. doi:10.1186/s12936-016-1319-1.
212. Zenner D, Méndez AR, Schillinger S, Val E, Wickramage K. Health and illness in migrants and refugees arriving in Europe: analysis of the electronic Personal Health Record system. *J Travel Med*. 2022;2:taac035. doi:10.1093/jtm/taac035.
213. I controlli alla frontiera: a frontiera dei controlli. Controlli sanitari all'arrivo e percorsi di tutela per i migranti ospiti nei centri di accoglienza [Border controls: health checks on arrival and protection routes for migrants in reception centres]. Rome: National Institute for Health, Migration and Poverty; 2017 (in Italian; https://www.epicentro.iss.it/migranti/pdf/LG_Migranti-web.pdf, accessed 8 April 2022).
214. Hjern A, Stubbe Østergaard L, Nørredam M-L. Health examinations of child migrants in Europe: screening or assessment of healthcare needs? *BMJ Paediatr Open*. 2019;3(1):e000411. doi:10.1136/bmjpo-2018-000411.
215. Kyozira C, Kabahuma C, Mpiima J. Integration of the UNHCR refugee health information system into the national health information management system for Uganda. *Health Inf Manag*. 2021;50(3):149–56. doi:10.1177/1833358319887817.
216. Tapales A, Desai S, Leong E. Data opportunities for studying the sexual and reproductive health of immigrants in the United States. *J Health Care Poor Underserved*. 2019;30(2):560–86. doi:10.1353/hpu.2019.0031.
217. Mercado CEG, Ekpirat N, Dondorp AM, Maude RJ. An assessment of national surveillance systems for malaria elimination in the Asia Pacific. *Malar J*. 2017;16(1):127. doi:10.1186/s12936-017-1774-3.
218. SCORE for health data technical package: essential interventions. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/334005>, accessed 16 April 2022).
219. Lopez PM, Divney A, Goldfeld K, Zanowiak J, Gore R, Kumar R et al. Feasibility and outcomes of an electronic health record intervention to improve hypertension management in immigrant-serving primary care practices. *Med Care*. 2019;57:S164–71. doi:10.1097/MLR.0000000000000994.
220. Sorkin DH, Rizzo S, Biegler K, Sim SE, Nicholas E, Chandler M et al. Novel health information technology to aid provider recognition and treatment of major depressive disorder and posttraumatic stress disorder in primary care. *Med Care*. 2019;57(suppl 6 suppl 2):S190–6. doi:10.1097/MLR.0000000000001036.
221. Saleh S, Alameddine M, Farah A, Arnaout NE, Dimassi H, Muntaner C et al. eHealth as a facilitator of equitable access to primary healthcare: the case of caring for non-communicable diseases in rural and refugee settings in Lebanon. *Int J Public Health*. 2018;63(5):577–88. doi:10.1007/s00038-018-1092-8.
222. Burchert S, Alkneime MS, Bird M, Carswell K, Cuijpers P, Hansen P et al. User-centered app adaptation of a low-intensity e-mental health intervention for Syrian refugees. *Front Psychiatry*. 2019;9:663. doi:10.3389/fpsy.2018.00663.
223. Personas migrantes en Tijuana frente al COVID-19: impactos y consecuencias de las medidas sanitarias desde la perspectiva de los actores [Migrants in Tijuana facing COVID-19: impacts and consequences of health measures from the perspective of the actors]. Tijuana: El Colegio de la Frontera Norte; 2020 (in Spanish; https://www.colef.mx/wp-content/uploads/2020/06/8_Personasmigrantes.pdf, accessed 15 April 2022).
224. Kitabayashi H, Chiang C, Al-Shoaibi AAA, Hirakawa Y, Aoyama A. Association between maternal and child health handbook and quality of antenatal care services in Palestine. *Matern Child Health J*. 2017;21(12):2161–8. doi:10.1007/s10995-017-2332-x.
225. Dahleez KA, Bader I, Aboramadan M. E-health system characteristics, medical performance and healthcare quality at UNRWA-Palestine health centers. *J Enterp Inf Manage*. 2021;34(4):1004–36. doi:10.1108/JEIM-01-2019-0023.
226. Arellano L. Diagnóstico sobre acceso a servicios de salud para personas migrantes, solicitantes de asilo y refugiadas [Assessment of access to health services for migrants, asylum seekers and refugees]. Mexico City: Sin Fronteras; 2014 (in Spanish; https://sinfronteras.org.mx/agendamigracioncdmx/assets/diagnostico_acceso_servicios_de_salud.pdf, accessed 15 April 2022).
227. Displacement tracking matrix [website]. Geneva: International Organization for Migration; 2019 (<https://dtm.iom.int/>, accessed 9 April 2022).
228. Migration management information initiative launched in Central American northern triangle [website]. El Salvador: International Organization on Migration; 2016 (<https://www.iom.int/news/migration-management-information-initiative-launched-central-american-northern-triangle#>, accessed 9 April 2022).

229. Guo P, Alajarmeh S, Alarja G, Alrjoub W, Al-Essa A, Abusalem L et al. Compounded trauma: a qualitative study of the challenges for refugees living with advanced cancer. *Palliat Med.* 2021;35(5):916–26. doi:10.1177/02692163211000236.
230. Heydari A, Amiri R, Nayeri ND, AboAli V. Afghan refugees' experience of Iran's health service delivery. *Int J Hum Rights Healthc.* 2016;9(2):75–85. doi:10.1108/IJHRH-06-2015-0020.
231. Jamil R, Kumar R. Culture, structure, and health: narratives of low-income Bangladeshi migrant workers from the United Arab Emirates. *Health Commun.* 2021;36(11):1297–308. doi:10.1080/10410236.2020.1750773.
232. Lyles E, Burnham G, Chlela L, Spiegel P, Morlock L, Doocy S et al. Health service utilisation and adherence to medication for hypertension and diabetes among Syrian refugees and affected host communities in Lebanon. *J Diabetes Metab Disord.* 2020;19(2):1245–59. doi:10.1007/s40200-020-00638-6.
233. Hussain AHME, Ahmed M, Vincent JE, Islam J, Sapkota YD, Das T et al. Rapid assessment of avoidable blindness and cataract surgery coverage among forcibly displaced Myanmar nationals (Rohingya refugees) in Cox's Bazar, Bangladesh. *PLOS One.* 2020;15(12):e0243005. doi:10.1371/journal.pone.0243005.
234. Ay M, González PA, Delgado RC. The perceived barriers of access to health care among a group of non-camp Syrian refugees in Jordan. *Int J Health Serv.* 2016;46(3):566–89. doi:10.1177/0020731416636831.
235. Tarraf W, Jensen GA, González HM. Impact of Medicare age eligibility on health spending among US and foreign-born adults. *Health Serv Res.* 2016;51(3):846–71. doi:10.1111/1475-6773.12402.
236. Castillo-Cañón JC, Bojorquez-Chapela I, Fernández-Niño J, Valbuena-García AM, Acuña-Merchan L. Healthcare-related expenditures among immigrants and non-immigrants living with HIV in Colombia. *Health Soc Care Community.* 2021;29(6):1887–95. doi:10.1111/hsc.13302.
237. Burney NA, Alenezi M, Al-Musallam N, Al-Khayat A. The demand for medical care services: evidence from Kuwait based on households' out-of-pocket expenses. *Appl Econ.* 2016;48(28):2636–50. doi:10.1080/00036846.2015.1128073.
238. Zambrano-Barragán P, Ramírez Hernández S, Freier LF, Luzes M, Sobczyk R, Rodríguez A et al. The impact of COVID-19 on Venezuelan migrants' access to health: a qualitative study in Colombian and Peruvian cities. *J Migr Health.* 2020;3:100029. doi:10.1016/j.jmh.2020.100029.
239. Legido-Quigley H, Chuah FLH, Howard N. Southeast Asian health system challenges and responses to the 'Andaman Sea refugee crisis': a qualitative study of health-sector perspectives from Indonesia, Malaysia, Myanmar, and Thailand. *PLOS Med.* 2020;17(11):e1003143. doi:10.1371/journal.pmed.1003143.
240. Khongthanachayopit S, Laohasirivong W. Accessibility to health services among migrant workers in the northeast of Thailand. *F1000Res.* 2017;6:972. doi:10.12688/f1000research.11651.1.
241. Thailand [website]. Bangkok: International Organization for Migration Thailand; 2022 (<https://thailand.iom.int/>, accessed 9 April 2022).
242. Kunpeuk W, Teekasap P, Kosiyaporn H, Julchoo S, Phaiyaron M, Sinam P et al. Understanding the problem of access to public health insurance schemes among cross-border migrants in Thailand through systems thinking. *Int J Environ Res Public Health.* 2020;17(14):5113. doi:10.3390/ijerph17145113.
243. Tangcharoensathien V, Thwin AA, Patcharanarumol W. Implementing health insurance for migrants, Thailand. *Bull World Health Organ.* 2017;95(2):146–51. doi:10.2471/BLT.16.179606.
244. Suphanchaimat R, Putthasri W, Prakongsai P, Tangcharoensathien V. Evolution and complexity of government policies to protect the health of undocumented/illegal migrants in Thailand: the unsolved challenges. *Risk Manag Healthc Policy.* 2017;10:49–62. doi:10.2147/RMHP.S130442.
245. Pudpong N, Durier N, Julchoo S, Sainam P, Kuttiparambil B, Suphanchaimat R. Assessment of a voluntary non-profit health insurance scheme for migrants along the Thai–Myanmar border: a case study of the migrant fund in Thailand. *Int J Environ Res Public Health.* 2019;16(14):2581. doi:10.3390/ijerph16142581.
246. Thailand migration report 2019. Bangkok: United Nations Thematic Working Group on Migration in Thailand; 2019 (<https://thailand.un.org/sites/default/files/2020-06/Thailand-Migration-Report-2019.pdf>, accessed 1 July 2022).
247. Suphanchaimat R, Kunpeuk W, Phaiyaron M, Nipaporn S. The effects of the health insurance card scheme on out-of-pocket expenditure among migrants in Ranong Province, Thailand. *Risk Manag Healthc Policy.* 2019;12:317–30. doi:10.2147/RMHP.S219571.
248. Saito M, Keereevijit A, San TD, Thein YY, Gilder ME, McGready R. Challenges to primary healthcare services in the management of non-communicable diseases in marginalised populations on the Thailand–Myanmar border: a pilot survey. *Trop Doct.* 2018;48(4):273–7. doi:10.1177/0049475518786853.
249. Loganathan T, Rui D, Pocock NS. Healthcare for migrant workers in destination countries: a comparative qualitative study of China and Malaysia. *BMJ Open.* 2020;10(12):e039800. doi:10.1136/bmjopen-2020-039800.
250. Biddle L, Mladovsky P, Bozorgmehr K. Health financing for asylum seekers in Europe: three scenarios towards responsive financing systems. In: Bozorgmehr K, Roberts B, Razum O, Biddle L, editors. *Health policy and systems responses to forced migration.* Cham: Springer International Publishing; 2020:77–98.

251. Bozorgmehr K, Razum O. Effect of restricting access to health care on health expenditures among asylum-seekers and refugees: a quasi-experimental study in Germany, 1994–2013. *PLOS One*. 2015;10(7):e0131483. doi:10.1371/journal.pone.0131483.
252. Bauhoff S, Göppfarth D. Asylum-seekers in Germany differ from regularly insured in their morbidity, utilizations and costs of care. *PLOS One*. 2018;13(5):e0197881. doi:10.1371/journal.pone.0197881.
253. Karanikolos M, Mladovsky P, Cylus J, Thomson S, Basu S, Stuckler D et al. Financial crisis, austerity, and health in Europe. *Lancet*. 2013;381(9874):1323–31. doi:10.1016/S0140-6736(13)60102-6.
254. Rosano A, Dauvrin M, Buttigieg SC, Ronda E, Tafforeau J, Dias S. Migrant's access to preventive health services in five EU countries. *BMC Health Serv Res*. 2017;17(1):588. doi:10.1186/s12913-017-2549-9.
255. Tatah L, Delbiso TD, Rodriguez-Llanes JM, Cuesta JG, Guha-Sapir D. Impact of refugees on local health systems: a difference-in-differences analysis in Cameroon. *PLOS One*. 2016;11(12):e0168820. doi:10.1371/journal.pone.0168820.
256. Cabieses B, Chepo M, Obach A, Espinoza M. Towards universal coverage for international migrants in Chile: accessibility and acceptability indicators from a multi-methods study. *Medical Research Archives*. 2019;7(1):1–20. doi:10.18103/mra.v7i1.1889.
257. Ortega CMF, Valderrama CG, Melis RP. Políticas públicas y salud en materia de inmigración: puntos críticos en la accesibilidad del sistema público chileno [Public policies and immigration health: critical issues in the accessibility of the Chilean public system]. *Acciones Investig Soc*. 2017;37:61–93 (in Spanish). doi:10.26754/ojs_ais/ais.2017372188.
258. Wassink JT. Out of sight and uninsured: access to healthcare among US-born minors in Mexico. *J Immigr Minor Health*. 2020;22(3):448–55. doi:10.1007/s10903-020-00997-5.
259. Zallman L, Wilson FA, Stimpson JP, Bearse A, Arsenault L, Dube B et al. Unauthorized immigrants prolong the life of Medicare's trust fund. *J Gen Intern Med*. 2016;31(1):122–7. doi:10.1007/s11606-015-3418-z.
260. Krishnan N. Coping with the influx: service delivery to Syrian refugees and hosts in Jordan, Lebanon, and Kurdistan, Iraq. Washington (DC): World Bank; 2020 (Policy Research Working Paper no. 9326; <https://openknowledge.worldbank.org/handle/10986/34172>, accessed 9 April 2022).
261. Public health services survey: inclusion of refugees into national health systems [online database]. Geneva: Office of the United Nations High Commissioner for Refugees; 2020 (<https://app.powerbi.com/view?r=eyJrIjoiaMWQ0OGM4YWEtNzYxZS00MTVlLTk4ZDItMjk4YzU5NTkwYjhhliwidCI6ImU1YzYzOTgxLTY2NjQtNDZlNC04YTJlYjY1NDNkMmFmODBiZSIsImMiOj9h&pageName=ReportSection>, accessed 9 April 2022).
262. Migration governance indicators: a global perspective. Geneva: International Organization for Migration; 2019 (<https://publications.iom.int/system/files/pdf/mgi-a-global-perspective.pdf>, accessed 3 May 2022).
263. Migration data relevant for the COVID-19 pandemic. In: Migration data portal [website]. Berlin: IOM's Global Migration Data Analysis Centre; 2022 (<https://www.migrationdataportal.org/themes/migration-data-relevant-covid-19-pandemic>, accessed 3 May 2022).
264. The migration governance indicators: success stories. Geneva: International Organization for Migration; 2021 (<https://publications.iom.int/system/files/pdf/MGI-SUCCESS-STORIES.pdf>, accessed 9 April 2022).
265. Migration governance framework (MIGOF). Geneva: International Organization for Migration; 2020 (https://www.iom.int/sites/g/files/tmzbd1486/files/about-iom/migof_brochure_a4_en.pdf, accessed 9 April 2022).
266. Report on the health of refugees and migrants in the WHO European Region: no public health without refugees and migrant health. Copenhagen: WHO Regional Office for Europe; 2018 (<https://apps.who.int/iris/handle/10665/311347>, accessed 9 April 2022).
267. Indicator: health. In: Migration integration policy index (MIPEX) [online database]. Barcelona: Barcelona Centre for International Affairs; Belgium: Migration Policy Group; 2020 (<https://www.mipex.eu/health>, accessed 9 April 2022).
268. Policy indicators: key findings. In: Migration integration policy index (MIPEX) [online database]. Barcelona: Barcelona Centre for International Affairs; Belgium: Migration Policy Group; 2020 (<https://www.mipex.eu/key-findings>, accessed 9 April 2022).
269. IOM Ireland rapid policy survey report: the Irish Government's policy response to COVID-19 from a migration governance lens, March 2020 – August 2020. Dublin: International Organization for Migration Ireland; 2020 (<https://publications.iom.int/system/files/pdf/iom-ireland-rapid-policy-survey-report.pdf>, accessed 9 April 2022).
270. Roche R, Simmons R, Crawshaw AF, Fisher P, Pareek M, Morton W et al. What do primary care staff know and do about blood borne virus testing and care for migrant patients? A national survey. *BMC Public Health*. 2021;21(1):336. doi:10.1186/s12889-020-10068-x.
271. Hospital treatment for overseas visitors. In: NHS Liverpool University Hospitals [website]. Liverpool: NHS Royal Liverpool Hospitals, Royal Liverpool and Broadgreen University Hospitals Trust; 2022 (<https://www.rluht.nhs.uk/about-the-trust/trust-statements/hospital-treatment-for-overseas-visitors/>, accessed 9 April 2022).
272. Cities of rights: ensuring health care for undocumented residents. Brussels: Platform for International Cooperation on Undocumented Migrants; 2017 (https://picum.org/wp-content/uploads/2017/11/CityOfRights_Health_EN.pdf, accessed 9 April 2022).

273. Hjern A, Østergaard LS. Migrant children in Europe: entitlements to health care. Brussels: Models of Child Health Appraised Consortium; European Commission; 2016 (<https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5ac79c440&appId=PPGMS>, accessed 9 April 2022).
274. Happel C, Dopfer C, Ernst D, Kleinert E, Vakilzadeh A, Hellms S et al. Pediatric healthcare utilisation in a large cohort of refugee children entering western Europe during the migrant crisis. *Int J Environ Res Public Health*. 2019;16(22):4415. doi:10.3390/ijerph16224415.
275. Rodríguez-Vargas JM, López Jaramillo AM, Vargas-Valle ED. La afiliación al sistema de salud de personas migrantes venezolanas en Colombia [The affiliation to the health system among Venezuelan migrants in Colombia]. *Rev Poblac Salud En Mesoamérica*. 2021;18(2):181–214 (in Spanish). doi:10.15517/psm.v18i2.42795.
276. Bojorquez-Chapela I, Infante C, Larrea-Schiavon S, Vieitez-Martinez I. In-transit migrants and asylum seekers: inclusion gaps in Mexico's COVID-19 health policy response. *Health Aff (Millwood)*. 2021;40(7):1154–61. doi:10.1377/hlthaff.2021.00085.
277. Rosa DL, Valdés BC. Acceso a salud de la población migrante internacional en situación irregular: la respuesta del sector salud en Chile [Access to health services for international migrant populations in irregular situations: health sector response in Chile]. *Cuad Méd Soc*. 2018;58(4):97–108 (in Spanish; <https://cms.colegiomedico.cl/wp-content/uploads/2019/04/Cuad-Med-Soc-Chile-2018-58-4-97-108.pdf>, accessed 15 April 2022).
278. Política de salud de migrantes internacionales [International migrant health policy]. Santiago: Ministry of Health, Chile; 2018 (in Spanish; <https://www.minsal.cl/wp-content/uploads/2015/09/2018.01.22.POLITICA-DE-SALUD-DE-MIGRANTES.pdf>, accessed 15 April 2022).
279. Marco de acciones rectoras para el derecho a la salud de las personas migrantes [Framework of guiding actions for the right to health of migrants]. San José: Ministry of Health, Costa Rica; 2016 (in Spanish; https://www.saludmigracion.org/system/files/repositorio/4-marco_de_acciones_rectoras_-_ministerio_de_salud_2016.pdf, accessed 15 April 2022).
280. Secretarial Resolution No. 266-2020. Lima: Ministry of Health, Peru; 2020 (in Spanish; <https://cdn.www.gob.pe/uploads/document/file/1399875/RS%20266-2020.pdf>, accessed 15 April 2022).
281. Angier H, Hoopes M, Marino M, Huguet N, Jacobs EA, Heintzman J et al. Uninsured primary care visit disparities under the Affordable Care Act. *Ann Fam Med*. 2017;15(5):434–42. doi:10.1370/afm.2125.
282. Wilson FA, Zallman L, Pagán JA, Ortega AN, Wang Y, Tatar M. Comparison of use of health care services and spending for unauthorized immigrants vs authorized immigrants or US citizens using a machine learning model. *JAMA Netw Open*. 2020;3(12):e2029230. doi:10.1001/jamanetworkopen.2020.29230.
283. Jarlenski M, Baller J, Borrero S, Bennett WL. Trends in disparities in low-income children's health insurance coverage and access to care by family immigration status. *Acad Pediatr*. 2016;16(2):208–15. doi:10.1016/j.acap.2015.07.008.
284. La Spina E. Categorías de exclusión en el acceso a la asistencia sanitaria de las personas migrantes en Canadá: una perspectiva comparada [Categories of exclusion in access to health care for migrants in Canada: a comparative perspective]. *Rev Derecho Político*. 2019;1(105):197–224 (in Spanish). doi:10.5944/rdp.105.2019.25271.
285. Santacruz JSR, Georg RR, Cubillos AF, Valverde JR, Wiesner MLR, Rodríguez AYR. Realidades migratorias actuales: una mirada frente a la recepción de la población de venezolanos en el contexto Colombiano y sus efectos en la salud [Current migratory realities: integration of Venezuelan migrants to the Colombian context and its health impacts]. In: Pardo MF, editor. *América Latina en las dinámicas de la migración internacional: perspectivas críticas [Latin America and the dynamics of international migration: critical perspectives]*. Bogotá: Universidad Externo de Colombia; 2019 (in Spanish).
286. Jaramillo Vélez LD, García-Juan L. Retos actuales de la atención sanitaria de la población inmigrante irregular en Colombia [Current challenges in the health care of the irregular immigrant population in Colombia]. *Rev Castell-Manchega Cienc Soc*. 2019;25:15–31 (in Spanish). doi:10.20932/barataria.v0i25.472.
287. Yang S. The public employment service in the Republic of Korea. Geneva: International Labour Organization; 2015 (Employment Working Paper no. 192).
288. Cho Y, Denisova A, Yi S, Khadka U. Bilateral arrangement of temporary labor migration: lessons from Korea's employment permit system. Washington (DC): World Bank; 2018 (<https://openknowledge.worldbank.org/handle/10986/30471>, accessed 9 April 2022).
289. Alam N, Kenny B, Maguire JE, McEwen S, Sheel M, Tolosa MX. Field epidemiology in action: an Australian perspective of epidemic response to the Rohingya health emergencies in Cox's Bazar, Bangladesh. *Glob Biosecurity*. 2019;1(1). doi:10.31646/gbio.14.
290. de Laat S, Wahoush O, Jaber R, Khater W, Musoni E, Abu Siam I et al. A case analysis of partnered research on palliative care for refugees in Jordan and Rwanda. *Confl Health*. 2021;15(1):2. doi:10.1186/s13031-020-00333-6.

291. Sami S, Amsalu R, Dimiti A, Jackson D, Kenyi S, Meyers J et al. Understanding health systems to improve community and facility level newborn care among displaced populations in South Sudan: a mixed methods case study. *BMC Pregnancy Childbirth*. 2018;18(1):325. doi:10.1186/s12884-018-1953-4.
292. Zihindula G, Akintola O, Meyer-Weitz A. How do policy documents relevant to refugees address issues relating to refugee's access to health care services in South Africa? *Afr Popul Stud*. 2017;31(1). doi:10.11564/31-1-956.
293. Comprehensive refugee response network [website]. Geneva: Office of the United Nations High Commissioner for Refugees (<https://www.unhcr.org/uk/comprehensive-refugee-response-framework-crrf.html>, accessed 30 April 2022).
294. Palmer JJ, Robert O, Kansime F. Including refugees in disease elimination: challenges observed from a sleeping sickness programme in Uganda. *Confl Health*. 2017;11(1):22. doi:10.1186/s13031-017-0125-x.
295. Masuku S, Rama S. A case study of government and civil societies' collaboration and challenges in securing the rights of Congolese refugees living in Pietermaritzburg, KwaZulu-Natal, South Africa. *S Afr J Sci*. 2020;116(3-4):6210. doi:10.17159/sajs.2020/6210.
296. Vearey J, Thomson K, Sommers T, Sprague C. Analysing local-level responses to migration and urban health in Hillbrow: the Johannesburg Migrant Health Forum. *BMC Public Health*. 2017;17(suppl 3):427. doi:10.1186/s12889-017-4352-2.
297. Lupieri S, Doetter LF. Transnational interdependency and healthcare system change: the role of humanitarian and development aid in shaping health policy in Jordan. *Glob Soc Policy*. 2020;20(2):192-214. doi:10.1177/1468018119896465.
298. Ethiopia: Proclamation No. 11102019. Addis Ababa: House of People's Representatives; 2019 (ETH-2019-L-109317; <https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/109317/135566/F-1190510897/ETH109317.pdf>, accessed 20 June 2022).
299. Ethiopia profile 2019: migration governance indicators. Geneva: International Organization for Migration; 2019 (https://publications.iom.int/system/files/pdf/mgi_ethiopia_2019.pdf, accessed 9 April 2022).
300. Vearey J. Moving forward: why responding to migration, mobility and HIV in South(ern) Africa is a public health priority. *J Int AIDS Soc*. 2018;21(suppl 4):e25137. doi:10.1002/jia2.25137.
301. Vearey J. Mobility, migration and generalised HIV epidemics: a focus on sub-Saharan Africa. In: Thomas F, editor. *Handbook of migration and health*. Cheltenham: Edward Elgar Publishing; 2016.
302. Heredia N, Jemio J, Lagos G. Plan Andino de salud personas migrantes 2019-2022 [Andean Health Plan for Migrants 2019-2022]. Lima: Organismo Andino de Salud Convenio Hipólito Unanue; 2019 (in Spanish; <https://pesquisa.bvsalud.org/portal/resource/pt/biblio-1119476?lang=en>, accessed 9 April 2022).
303. Republic of Nicaragua profile 2021: migration governance indicators. Geneva: International Organization for Migration; 2021 (<https://publications.iom.int/system/files/pdf/MGI-%20Nicaragua-2021.pdf>, accessed 1 July 2022).
304. South-East Asia/ASEAN Region: annual narrative progress report. Geneva: International Labour Organization; New York: United Nations Entity for Gender Equality and Empowerment of Women; 2019 (https://www.spotlightinitiative.org/sites/default/files/publication/AR2019_SAFEANDFAIR_spotlightinitiative_FINAL.pdf, accessed 9 April 2022).
305. Refugees receive COVID-19 vaccinations in Jordan. Amman: Office of the United Nations High Commissioner for Refugees; 2022 (<https://www.unhcr.org/ph/22405-refugees-covid-vaccinations-jordan.html>, accessed 16 April 2022).
306. COVID-19: WHO EMRO biweekly situation report #1: epi weeks 1-2 (3-16 January 2021) [website]. Cairo: WHO Regional Office for the Eastern Mediterranean; 2021 (http://www.emro.who.int/images/stories/coronavirus/documents/covid_19_bi-weekly_sitrepre_one.pdf?ua=1, accessed 3 May 2022).
307. Bellizzi S, Aidryalieva C, Alsawhala L, Al-Shaikh A, Santoro A, Profili MC. Vaccination for SARS-CoV-2 of migrants and refugees, Jordan. *Bull World Health Organ*. 2021;99(9):611. doi:10.2471/BLT.21.285591.
308. Al-Shaikh A, Muthu N, Aidryalieva C, Profili MC, Bellizzi S. COVID-19 vaccine roll-out in middle-income countries: lessons learned from the Jordan experience. *Vaccine*. 2021;39(34):4769-71. doi:10.1016/j.vaccine.2021.06.078.
309. IOM Jordan [website]. Amman: International Organization for Migration; 2021 (<https://jordan.iom.int/>, accessed 16 April 2022).
310. UNHCR continues to support refugees in Jordan throughout 2019. Amman: Office of the United Nations High Commissioner for Refugees; 2019 (<https://www.unhcr.org/jo/12449-unhcr-continues-to-support-refugees-in-jordan-throughout-2019.html>, accessed 16 April 2022).
311. Where we work: Jordan. Amman: United Nations Relief and Works Agency for Palestine refugees in the Near East; 2022 (<https://www.unrwa.org/where-we-work/jordan>, accessed 3 May 2022).
312. Regional action agenda on achieving the Sustainable Development Goals in the Western Pacific. Manila: WHO Regional Office for the Western Pacific; 2017 (<https://apps.who.int/iris/handle/10665/254663>, accessed 29 April 2022).

313. Regional framework for urban health in the Western Pacific 2016–2020: healthy and resilient cities. Manila: WHO Regional Office for the Western Pacific; 2016 (<https://apps.who.int/iris/handle/10665/208321>, accessed 29 April 2022).
 314. Western Pacific regional framework for action for disaster risk management for health. Manila: WHO Regional Office for the Western Pacific; 2015 (<https://apps.who.int/iris/rest/bitstreams/1246887/retrieve>, accessed 29 April 2022).
 315. Universal health coverage: moving towards better health. Action framework for the Western Pacific Region. Manila: WHO Regional Office for the Western Pacific; 2016 (<http://apps.who.int/iris/handle/10665/246420>, accessed 29 April 2022).
- 

CHAPTER 5

Mapping progress towards global health goals: an exploratory review



A Ugandan refugee and trained yoga instructor teaches refugees and Kenyans in Kakuma refugee camp alternative ways to maintain their physical and mental well-being. © UNHCR / Samuel Otieno

- Data on health care for refugees and migrants are of poor quality because they are not disaggregated by migratory status, not systematically collected, not representative of the refugee and migrant populations, and often are not comparable across countries and over time.
- More and better quality data are urgently needed to monitor the health of refugees and migrants if many health and health-related SDGs and targets are to be met.
- Household surveys have improved the methodology and quality of data over the decades, but clearer definition of “migrants”, more systematic data collection and data from representative samples are still needed.

5.1 Introduction

"What gets measured, gets done" is an oft-quoted management maxim (1). When designing the 2030 Agenda for Sustainable Development, global leaders were mindful that the goals of the 2000 United Nations Millennium Declaration had lacked clear paths for measuring progress. They, therefore, embedded into the SDGs not only goals and targets but also the requirement for a follow-up and review process, or monitoring system (2,3). This gave rise to the SDG indicator framework (4), developed during 2016–2017 and adopted at the United Nations General Assembly on 6 July 2017 (5).

Paragraph 75 of the SDG framework clearly articulated this requirement and entrusted an Inter-Agency and Expert Group on SDG Indicators to develop the review process and be its custodian. To expedite equitable progress towards all SDG targets, overarching SDG Target 17.18 calls for countries to undertake data disaggregation by 2020 in order to fulfil the mandate in the 2030 Agenda for Target 17.18 (5):

enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, *migratory status*, disability, geographic location and other characteristics relevant in national contexts.

When the 2030 Agenda was adopted in 2015, it set a 2020 deadline for Target 17.18 to emphasize the urgency of the issue. It was intended to allow for 10 years – from 2020 to 2030 – of effective monitoring using disaggregated data.

The 2020 deadline came and went, and the world, including high-income countries, missed the target (6). The COVID-19 pandemic clearly brought additional constraints and limitations to data collection, not least by seriously disrupting the 2020 round of censuses and household surveys (7,8). With eight years remaining until the SDG target date of 2030, an unprecedented acceleration of progress and focused attention are needed to be able to monitor the health and health-related SDGs in terms of migratory status. As with all targets for SDG 17, which are meant to "strengthen the means of implementation and revitalize

the Global Partnership for Sustainable Development" (5), this must be carried out with national and international partners.

This chapter aims to provide illustrative examples and focuses on international migrants as this report is intended to cover this group. However, the analyses in this chapter are limited because high-quality comparable data are still lacking, and many policies and programmes are ad hoc and not evidence based. This chapter calls on national and international policy-makers to change the current narrative by moving from small-scale, unrepresentative and non-comparable data sets to robust, comparable and high-quality data, which would allow appropriate decisions to be taken at the local, national, regional and global levels. This move can be made only by understanding the challenges and pitfalls so that they can be addressed and avoided. The examples



In Suriname, following the near elimination of malaria in village communities, the Ministry of Health Malaria Programme has a focused on malaria transmission in remaining risk populations and areas, including irregular migrants from Brazil working in gold mining areas.
© WHO / PAHO

highlighted in this chapter make a convincing case for strengthening systems for data collection, evidence gathering and monitoring. Such strengthening will not only help to meet SDG Target 17.18, albeit late, but also create an enabling environment to fulfil the promises of the 2030 Agenda and meet all SDG targets, for all people, including refugees and migrants, and ensure that no one is left behind.

5.2 The challenge to meet

This chapter is both a reminder and a wake-up call for governments, for national, regional and international organizations, and for researchers. Urgent, practical steps need to be taken (9–12). In particular, this chapter makes the case not only for more data but also for better-quality and more robust data that are comparable within and across countries and over time, encompassing health status and also the determinants of health.

With this chapter, WHO aimed to explore and analyse key data sets to reveal the progress that has been made towards reaching the SDG targets for refugees and migrants. However, the review underscored a number of gaps and inconsistencies that made it nearly impossible to assess this progress.

Nonetheless, it does mark the first attempt by WHO to conduct an exploratory review with the following objectives:

- to disaggregate data from five key international surveys¹ by health and migratory status in the context of the SDGs;
- to use SDG indicators and reporting frameworks as examples to illustrate the benefits and challenges of collecting,

Still fewer data are available about hard-to-reach populations, such as irregular migrants, refugees not living in camps, victims of trafficking, deportees, stateless individuals and people perpetually on the move.

harmonizing and analysing data about the health of refugees and migrants; and

- to discuss potential measures that can be taken.

Great strides have been made by household surveys during the past 40 years in generating comparable data across countries and over time, and this chapter highlights the potential for using these data sets to monitor the progress made by countries towards achieving the many health and health-related SDG targets.

This chapter also provides a strong justification for why such comprehensive data are essential to monitor progress towards achieving global and national health goals and to promote the health of refugees and migrants through an inclusive public health approach. While the analyses do not provide baseline data for any specific indicator or target, nonetheless valuable lessons have been learned about the work required to meet the goals and aspirations of the global community, including refugees and migrants.

¹ The surveys analysed included both internal and international migrants, but this chapter only covers the data for international migrants.

The chapter concludes with a discussion of how the availability and usefulness of such data might be increased in preparation for essential tasks, such as formulating policies and designing programmes (Box 5.1).

5.2.1 Making the health of refugees and migrants visible in major data sets

As described in Box 5.1, disaggregating data into smaller units allows underlying trends, patterns and inequities to be analysed with greater precision and clarity (13). The benefits of disaggregation range from more accurately monitoring progress, which allows interventions to be targeted towards attaining goals, to conducting health situation analyses for subgroups in a population, to timely problem detection and to improved targeting of resources and improved implementation and evaluations of programmes.

The 17 SDGs in the 2030 Agenda are interlinked and interdependent across the spectrum of development needs (14). In addition to SDG 3 (ensure healthy lives and promote well-being

for all at all ages), widely known as the health SDG, at least nine others are directly related to health (Table 5.1).

5.2.2 The SDGs and population movement

The impact of population movement on development is widely recognized, yet there remains a dearth of routinely collected systematic and representative data and evidence about the health of refugees and migrants at local, national, regional and global levels (15–17). Therefore, refugees and migrants are largely invisible in official data relating to the SDGs that are relevant to health. As 2030 approaches, little is known about whether efforts to meet SDG 3 are improving the health of refugee and migrant populations or to what extent they are being left behind (18). Still fewer data are available about hard-to-reach populations, such as irregular migrants, refugees not living in camps, victims of trafficking, deportees, stateless individuals and people perpetually on the move.

Box 5.1. Big picture versus full picture

When data are aggregated, they provide a big picture.

The focus on the promise in the 2030 Agenda for Sustainable Development to leave no one behind has highlighted a problem: the big picture does not always portray the full picture. That is, the actual living conditions of vulnerable people are hidden, such as people with disabilities, people living with precarious health conditions (e.g. HIV or AIDS), indigenous peoples, undocumented (or irregular) migrants, religious minorities, refugees, the uninsured, elderly people, those who are internally displaced and those who are in vulnerable working conditions, among others; sometimes the oversight is inadvertent, but at other times, it occurs deliberately, such as through information suppression.

Table 5.1. The SDGs most directly related to global health^a

SDG 3	Interlinkages between SDG 3 and other SDGs within the current framework	Interlinkage between SDGs and targets and indicators within the current framework
Ensure healthy lives and promote well-being for all at all ages	1. No poverty	1.1, 1.2, 1.3, 1.4, 1.5, 1.a, 1.b
	2. Zero hunger	2.1, 2.2
	4. Quality education	4.1, 4.2, 4.3, 4.7
	5. Gender equality	5.1, 5.2, 5.3, 5.6, 5.c
	6. Clean water and sanitation	6.1, 6.2, 6.3, 6.4, 6.a, 6.b
	7. Affordable and clean energy	7.1
	8. Decent work and economic growth	8.1, 8.3, 8.5, 8.6, 8.7, 8.8
	9. Industry, innovation and infrastructure	9.1, 9.c
	10. Reduced inequalities	10.1, 10.2, 10.3, 10.4, 10.7
	11. Sustainable cities and communities	11.1, 11.2, 11.3, 11.5, 11.6, 11.7, 11.b
	12. Responsible consumption and production	12.4
	13. Climate action	13.1, 13.3
	14. Life below water	14.1, 14.2
	16. Peace, justice and strong institutions	16.1, 16.2, 16.3, 16.4, 16.6, 16.7, 16.9, 16.10, 16.a
	17. Partnerships for the goals	17.13, 17.16, 17.18

^a Red indicates indirect interlinkage.

Source: Inter-Agency and Expert Group on Sustainable Development Goal Indicators (14).

The 2030 Agenda makes clear that refugees and migrants are included in the overall principle of leaving no one behind (5). Paragraph 29 acknowledges the importance of migrants in global development, while paragraph 23 recognizes the vulnerability of "refugees and internally displaced persons and migrants" (5). However, only two targets in the SDG framework can be directly tied to improving the health of refugees and migrants: Target 8.8 (protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment) and Target 10.7 (facilitate orderly, safe, regular and responsible migration and mobility of people, including

through the implementation of planned and well-managed migration policies). However, Target 17.18 applies specific SDG targets to all populations, making all outcome indicators relevant to all groups, including refugees and migrants.

5.2.3 Moving forward on disaggregation

The indicators set out in Target 17.18 were revised during the 2020 comprehensive review by the United Nations Statistical Commission (19), which focused on national capacities, legislation and plans and introduced 36 major changes to the 2017 framework (4). The need for improvements was also emphasized by the Global compact

on refugees and the *Global compact for safe, orderly and regular migration* (11,12).

WHO supports monitoring of the SDG targets through the Inter-Agency and Expert Group on SDG Indicators.

In the IOM's 2020 institutional strategy on migration and sustainable development and its migration data strategy (17,20), the Organization provides guidance on disaggregating SDG indicators by migratory status. These publications are intended to help governments and institutions to take practical, low-cost steps to disaggregate data across sectors by migratory status; the strategies provide examples and highlight special considerations relevant to the health-related SDG targets.

In a pilot study, *Leave no migrant behind: the 2030 Agenda and data disaggregation*

(18), the IOM builds on the work of its Global Migration Data Analysis Centre, highlighting the case for identifying migrants within large data sets and exploring how to work with specific indicators, including data sources. The potential for digging deep into large data sets was demonstrated by disaggregating data on migratory status from data in IPUMS, a large, accessible database containing census and other population data from more than 100 countries (21). This study disaggregated information about SDG Indicator 8.6.1 (the proportion of youth not in employment, education or training) from census data using the variables "nativity", "native-born" or "foreign-born" as indicators of migratory status. Although the study was not focused directly on health but on determinants of health, it illustrates the potential for disaggregating data relevant to determinants of health from large databases.



Two nurses go over patient files in the labour ward of Mama Lucy Kibaki Hospital in Nairobi, Kenya. © WHO / Khadija Farah

5.3 Review methodology

The review conducted for this chapter began by considering which large data sets to explore. The Multiple Indicator Cluster Survey (MICS) round 6 (MICS6) and the Demographic and Health Survey (DHS) phase VII (DHS-VII) were clear choices because these global data sets allow for intercountry comparability and offer the potential to disaggregate outcomes about health and various determinants of health by migratory status. The review also included data from the European Social Survey (ESS), the Programme for International Student Assessment (PISA) and the Household Survey Databank (*Banco de Datos de Encuestas de Hogares*; BADEHOG), all of which provide sociodemographic details that constitute key determinants of health. PISA provides self-reported data related to mental health, and the ESS includes self-reporting on health and limiting long-term illness.

A more detailed discussion of the review methodology, including its limitations and potential, is presented in the Annex.

5.3.1 Criteria for inclusion

The following criteria were used to determine which countries and surveys would be included in this review; to be included:

- survey data and documentation needed to be available in English;
- the survey reference period had to be from 2015 and onwards, to capture the most recent trends;
- the percentage of international migrants in the total sample (of internal and international migrants) had to be at least 1%, in order to conduct meaningful analyses.

A total of 77 candidate countries had conducted MICS6 and DHS-VII and had data available online for downloading for

further analysis when this review was carried out. However, for reasons related to data validity and representativeness (Annex), only 28 countries could be included fully in the review. However, six that had been excluded because their survey provided data only for female respondents (but satisfied all other criteria) were included in Tables 5.7–5.10, which discuss gender-specific issues (Box 5.2). Although the review generated a number of detailed data tables, only those are shown for which it is possible to present clearly the potentials and limitations of the data.

Other data sources were also considered, such as censuses, civil registration and vital statistics systems and the administrative data produced by national HIS. However, these often have issues related to accessibility and comparability across countries and over time. Additionally, some presented problems regarding privacy – particularly concerns that data collected by tracking health information using migratory status could be misused – and data security, as well as a lack of disaggregation of health information and concerns about interoperability across national and global levels and between various agencies and organizations (22,23).

Nonetheless, a comprehensive review of all major data sets from across the world can shed light on health and migration, whether about determinants, health status or health systems, and this is of paramount importance to get a true picture of the health of refugees and migrants: their health issues, the challenges they face and how to overcome them. Such studies are time and resource intensive but must be prioritized to develop a robust data and monitoring framework for health and migration. Only the development of such a framework will permit decision-makers to confidently address the issues, determine which policies need introducing or changing, and which types of intervention are needed.

Box 5.2.

Countries included in the exploratory review, by WHO region**African Region**

Benin
 Burundi
 Cameroon
 Central African Republic
 Chad
 Ethiopia
 Gambia
 Ghana
 Guinea
 Guinea-Bissau
 Lesotho
 Liberia
 Malawi
 Mali
 Sao Tome and Principe
 Sierra Leone
 Togo
 Zimbabwe

Region of the Americas

Guyana
 Suriname

South-East Asia Region

Indonesia
 Nepal
 Thailand

European Region

Armenia
 Kosovo^a
 Montenegro

Eastern Mediterranean Region

Jordan

Western Pacific Region

Tonga

Additional countries added to gender-specific analyses

Argentina
 Chile
 Colombia
 Costa Rica
 Dominican Republic
 Ecuador

^a All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

5.3.2 Data limitations

The tables are presented only for illustrative purposes, and they should be reviewed with close attention paid to the caveats and limitations of the data, such as in terms of sample size, representativeness and definitional and other issues. Note also that the numbers in the tables do not always sum to 28 or 34 (28 plus 6) because data for some of the chosen indicators were not available for all 28 countries.

None of the surveys was originally designed to investigate population movement, but all, in different ways, strive to provide important information about international migration. In particular, questions in the DHS and MICS have been refined and harmonized to be comparable

over time and across countries. However, questions on migratory status were added only relatively recently, since the *New York declaration for refugees and migrants* of 2016 (10), and they present a number of limitations.

The DHS and MICS are the largest surveys and are not carried out in the countries that are the most typical destinations for international migrants – that is, those higher-income nations from which the greatest amount of research on refugees and migrants is available (Chapter 1, Table 1.2). Some of these nations are included in the BADEHOG, ESS and PISA surveys. However, the health and health-related variables available in these surveys are relatively sparse compared with those in the MICS and DHS.

Data in some of the tables may reflect results that are not fully aligned with the findings reported in Chapters 2–4, which are based on a global literature review. It is difficult to provide a comprehensive explanation for the lack of alignment because of the limited data available from global surveys and a lack of information about how international migrants were sampled and recruited for the DHS and MICS. The majority of the studies in the global literature review were from the high-income countries that are the traditional destinations (Annex, Fig. A.1), whereas the majority of the data analysed in this chapter are not from these destination countries. This could be why the results are not completely aligned with those in Chapters 2–4. However, because of the limited data, it is not possible to conclude whether such inconsistencies are the result of data-quality issues or are an accurate reflection of the health of refugees and migrants residing in the countries presented in the tables. The definitive answers to such questions need to be explored through further research and data that are collected systematically and routinely.

Similarly, the proportion of international migrants in the included surveys does not always reflect the actual proportions as reported in the global estimates produced by UNDESA. Since 1990 UNDESA has published periodic estimates of the total number of international migrants ("stock") by country or area of destination and origin and by age and sex. Most of the data used by UNDESA to estimate the total number of migrants by country or area are obtained from population censuses, but population registers and nationally representative surveys are also used (24). In some countries, such as Gambia and Togo, the proportion of international migrants reported in the MICS6 and DHS-VII is higher than that reported by UNDESA. However, for most countries, UNDESA reports lower proportions of international migrants.

Alternative data collection approaches might also need to be considered. For example, if refugees are living in camps, then data might need to be collected directly from the camps and not through household surveys.

Survey completeness poses another challenge. It is only recently that surveys have started to collect data that specifically track international migration – and such data are not collected in all countries. When the data are collected, surveys may not yield a sample size that is statistically valid and representative of the refugee and migrant populations residing in a country. Statistical validity is even harder to achieve when disaggregating by migratory status and by other dimensions, such as disability or occupation. The unknowns associated with irregular migration also add an element of difficulty to ensuring data are complete.

The questions asked in the two major household surveys may obscure some dimensions of migration due to a lack of clarity (see the definitions in section 5.3.3). However, these data are still interesting, since respondents have been migrants recently. Consequently, the DHS and MICS present a good global data set if the focus is on the experience of migration and not current migratory status, which has implications for access to health care and social services. No information about when migration might have occurred is collected. Neither survey provides consistent representation from all

regions. Despite these challenges, the MICS and DHS present the largest global data set that includes international migrants. (A more detailed discussion of the sampling strategies of the two surveys is presented in Box 5.3.)

Overall, the populations and data covered by the MICS6, DHS-VII, ESS, PISA and BADEHOG surveys are wide and diverse (Table 5.2). The greatest representation of countries in the WHO African Region is in the MICS6 and DHS-VII surveys, which include 18 sub-Saharan countries.

Box 5.3.

Sampling in the Multiple Indicator Cluster Survey and Demographic and Health Survey and ways to ensure that refugees and migrants are included

The Multiple Indicator Cluster Survey (MICS) and Demographic and Health Survey (DHS) household sample surveys have become key sources of data on social phenomena since the 1980s. They are among the most flexible methods of data collection. In theory, almost any population-based topic can be investigated through household surveys. It is common for households to be used as second-stage sampling units in most area-based sampling strategies. In sample surveys, part of the population is selected and observations are made or data are collected, and then inferences are made from this part to the whole population. Because sample surveys entail smaller workloads for interviewers and allow more time for data collection, most topics can be covered in greater detail than in censuses (25).

A probability sample can be drawn only from an existing sampling frame that contains a complete list of statistical units in the target population. Since constructing a new sampling frame is likely to be expensive, household surveys should use an adequate pre-existing sampling frame that is officially recognized. This is possible where there has recently been a population census. Census frames generally provide the best sampling frame in terms of coverage, cartographic materials and organization. In the absence of a census frame, a household survey can use an alternative, such as a complete list of villages or communities in the country that includes a measure of population size (e.g. number of households) and all necessary identification information or a master sample that is large enough to support the survey design (26). However, this is an expensive alternative. The sampling frame used for the global surveys is often not representative of all population groups. Additionally, migrants are a heterogeneous group (e.g. in terms of migratory status, country of origin, reason for migration) and that heterogeneity needs to be reflected in a sampling frame in order to address their health needs adequately.

If a representative sample of refugees and migrants is not included in the traditional sampling frame, then a different frame must be generated from untraditional sources, such as estimates and data from immigration authorities. Alternative data collection approaches might also need to be considered. For example, if refugees are living in camps, then data might need to be collected directly from the camps and not through household surveys. Similarly, for irregular migrants and other migrant groups, oversampling or purposive sampling should be integrated into the survey design, as often these groups are missing from the census frame. Surveys of populations that are hard to identify or are not willing or able to take part in surveys, or both, have been the object of methodological reflection (27). Various methods aimed at producing a sample that can be extrapolated from these populations have been proposed, such as time-space or time-location sampling, respondent-driven sampling and the capture-recapture method (28).

Table 5.2. Data from the DHS-VII, MICS6, ESS, PISA and BADEHOG surveys

Survey (years covered)	Area	Survey population
DHS-VII, MICS6 (2015 to 2020)	World	Households
ESS (every 2 years from 2002 to 2018)	Europe and central Asia	People aged ≥15 years who live in a private household, regardless of their nationality, citizenship, primary language or legal status
PISA (2018)	World	Students aged 15 years and 3 (completed) months and 16 years and 2 (completed) months at the start of the survey period, who are attending educational institutions located within the country and are in grade 7 or higher
BADEHOG (2018 to 2019)	United Nations Economic Commission for Latin America	Households

The high-income countries that are often the destination for international migrants normally do not conduct household surveys, but they use other methods, and health data usually come from administrative records. Since data from administrative records often are not comparable across countries and over time, this report did not consider these. Future reports should consider both types of data set, as well as innovative data sources. This chapter is intended to demonstrate the power of household surveys to elicit information about health and migration.

5.3.3 Definitions

Identifying a person as a international migrant is challenging for global surveys since people on the move may be defined differently by different countries and organizations. While refugee status is clear due to its definition in the 1951 Geneva Convention (Chapter 1), there is no global consensus on the definition of migrant (29).

The definitions used by IOM and UNDESA provide good examples. The IOM's definition is an operational aid for discussing and raising the challenges connected to migration and gathering information; the UNDESA

definition is statistical and aimed at bringing clarity to data collection and analysis (30,31). IOM's definition of a migrant as "a person who moves away from his or her place of usual residence, whether within a country or across an international border, temporarily or permanently, and for a variety of reasons" focuses on movement, regardless of the geography, time or reason for migration (30). UNDESA focuses on movement from a person's "usual residence" and provides separate definitions for short-term and long-term migrants (31). National statistical professionals across the world have not yet come to a clear consensus on these important definitions.

The questions used by the surveys featured in this illustrative review to identify and define migratory status also vary significantly.

The **MICS6** and **DHS-VII** classify two types of migratory status: international migrant and non-migrant (which includes internal migrants). For MICS, international migrants refer to those who choose "overseas/outside of country" in response to the variable "place of living prior to moving to current place" and "province prior to moving to current place". In the DHS, international migrants are those who

choose "abroad" in response to the variable "region of previous residence". The surveys use different variables to identify non-migrants: the MICS uses "duration of living in current place" and the DHS uses "years lived in place of residence". In the MICS, respondents who answer "always/since birth" are included as non-migrants. Time is not considered as a variable in all classifications. One of the ambiguities that arises in the way that the DHS and MICS record migratory status can be seen in the DHS survey question, "Before you moved here, which [province/region/state] did you live in?" The equivalent question in the MICS is, "Before you moved here, in which region did you live?" It is possible for this indicator to capture people who are currently not international migrants, such as returning citizen migrants – that is, people who are citizens of the country where they are staying or people who acquired citizenship in the country where they are residing.

PISA includes an indicator of migratory status with the values "native, second generation, first generation". In this review, native has been changed to non-migrant to ensure consistency in reporting the results from various surveys. First-generation migrant students are foreign-born students whose parents are both also foreign born. Second-generation migrant students are born in the country where they sat the PISA test and whose parents are both foreign born. Information on citizenship is not collected in the survey. For the purposes of this review, second-generation students are not considered migrants since they have not moved across a border, although they may not necessarily be citizens of the country where they live. (In a related issue, even if second-generation migrants – that is, descendants of migrants – are citizens, they may continue to face challenges similar to those suffered by their migrant peers, such as discrimination.)

The **ESS** uses the variable "citizen of country" to classify international and non-international migrants. However, further disaggregation is not possible because both internal migrants and non-migrants are referred to as non-migrants.

BADEHOG indicators vary slightly between survey countries in Latin America and the Caribbean. Most ask "Where were you born?", with values that include terms such as bordering country, other country or outside of the country. Uruguay's ongoing household survey of 2019 (known as ECH 2019) takes a different approach in question E37, seeking to determine the "immediate place of residence after birth" and offering the choice "foreign residence at birth". While this establishes respondents' migratory status, it does not necessarily reflect their citizenship.

One major survey, Afrobarometer, could not be included in this review because of the unclear question regarding migratory status: "During the past three years, have you or anyone in your household gone to live in another country outside [name of country] for more than three months?" A yes answer to this question would capture both returning citizens and left-behind families who have or had an international migrant household member.

The term host population in Tables 5.4–5.11 includes individuals who are not international migrants (internal migrants, where data available, and individuals that are not migrants).

Table 5.3 summarizes the questions used by the surveys featured in this illustrative review to identify and define migratory status.

Table 5.3. Questions and variables used in surveys to identify migratory status

Survey	Variable name or number, label and question	Response choices	Response used to assess migratory status
MICS6	WB15/MW15: Duration of living in current place Question: How long have you been continuously living in [name of current city, town or village of residence]?	No. of years 95 = Always/since birth 99 = No response	Always/since birth (to identify non-migrants)
	WB16/MW16: Place of living prior to moving to current place Question: Just before you moved here, did you live in a city, in a town or in a rural area? (Note: used only by Gambia and Togo; other countries or areas used WB17/MWB17)	1 = City/urban 2 = Town 3 = Rural area Overseas/outside of country	Overseas/outside of country (international migrants) City/town in the country (internal migrants)
	WB17/MWB17: Province prior to moving to current place Question: Before you moved here, which region did you live in?	Places in the country 96 = Outside of (country), specify/overseas	Overseas/outside of country (international migrants) Places in the country (internal migrants)
DHS-VII	V104/MV104: Years lived in place of residence Question: How long have you been living continuously in [name of current city, town or village of residence]?	No. of years 95 = Always 96 = Visitor 97 = Inconsistent 98 = Don't know	Always (non-migrants)
	V105A/MV105A: Region of previous residence Question: Before you moved here, which [province/region/state] did you live in?	Regions of the country 96 = Abroad	Abroad (international migrants) Regions of the country (internal migrants)
ESS	Ctzcncr: Citizen of country	Yes No	Yes (non-international migrant) No (international migrant)
PISA	IMMIG: Index immigration status	Native, second generation, first generation	Native (non-immigrant) First- and second-generation (international migrant)
Examples of surveys included in BADEHOG			
Argentina (EPH 2019)	CH15: Where were you born?	Bordering country/other country	Born outside of the country
Colombia (GEIH 2019)	P756S3: Where were you born?	Other countries	Born outside of the country
Uruguay (ECH 2019)	E37: Immediate place of residence after birth	Other country	Foreign residence at birth

ECH: Continuous Household Survey (Encuesta Continua de Hogares); EPH: Permanent Household Survey (Encuesta Permanente de Hogares); GEIH: Comprehensive Survey of Household (Gran Encuesta Integrada de Hogares).

5.4 Review results

Major determinants of refugee and migrant health include a number of factors, from the environment (e.g. air quality and water quality) to the migratory status of these populations as defined by national legislation (Chapter 2).

The review found useful data regarding four categories of key socioeconomic determinants: housing, access to health insurance, access to health care services and WASH. These determinants touch directly on SDGs 1 (poverty), 3 (health), 4 (education), 6 (water and sanitation) and 11 (sustainable cities and communities).

5.4.1 Housing

As discussed in Chapter 2, housing conditions are critical to the health outcomes of refugees and migrants, with determinants ranging from construction quality to forms of tenure and numbers of people sharing dwellings (32,33). There is also a significant gender consideration, given the location- and building-related risks of violence to women and girls and the difficulty of finding safe private places for managing menstruation when living in tents, multihousehold dwellings, unfinished buildings or communal spaces (34).

The BADEHOG surveys ask about overcrowding as measured by the number of people sleeping in a single bedroom (Table 5.4). This can be important as overcrowding can increase the risk of transmission of communicable diseases, lead to greater levels of violence and mental health issues, and generally reduce the quality of life (36,37). In seven of the nine countries in Latin America and the

Caribbean covered by the surveys, a relatively larger proportion of international migrants tended to live in households where three or more people shared a bedroom. In a few countries, this proportion is strikingly higher for international migrants. However, two countries, Panama and Paraguay, showed the opposite pattern: a higher proportion of non-migrants lived in households where three or more people shared a bedroom. Additional research is needed to determine whether this reflects reality or issues with sampling, as highlighted above.

Table 5.4 shows that, generally, a higher proportion of international migrants experience overcrowding than their host counterparts do. In Chile, international migrants experience overcrowding more frequently than the local population, in addition to residing in smaller living quarters with few security measures (38). Violence is compounded by overcrowding, and migrants, especially international migrant women, face a higher risk of violence as well

Table 5.4. Percentages of households with three or more people per bedroom in the BADEHOG studies, by migratory status, 2017, 2018 and 2019

Country or area	Survey year	% of households with ≥ 3 people/bedroom, both sexes	
		International migrant	Host population
Argentina	2019	31.1	29.1
Chile	2017	18.3	4.1
Colombia	2019	51.4	20.5
Costa Rica	2018	15.5	6.0
Dominican Republic	2019	49.3	12.4
Ecuador	2019	29.5	25.0
Panama	2019	14.8	21.7
Paraguay	2018	18.7	33.5
Uruguay	2019	13.5	10.0

Source: United Nations Economic Commission for Latin America and the Caribbean (35).



Girls play outside their cabin at a centre for migrants in Sweden. © WHO / Malin Bring

as unsuitable housing conditions than non-migrant populations (39). Such conditions are linked to poor health outcomes, and findings from Peru indicate overcrowding (defined as four or more people living in one room) among Venezuelan migrants is linked to poor quality of life, relapse of chronic diseases and a variety of mental health issues (40). In Costa Rica, a high proportion of international migrants experience overcrowding, and this is a top risk factor for TB among them (41).

Globally, migrant workers often live in dormitories or camps established by their employers, while refugees may live in crowded camps, and these conditions increase the risk of transmission of communicable diseases (42–44). Farmworkers in the United States, for example, often live in family or communal dwellings judged to have poor conditions (including overcrowding, mould, mildew and structural deficiencies) or in encampments, and both of these living situations are linked to adverse health outcomes (45).

5.4.2 Health insurance

Health financing arrangements vary from country to country, with a vast range of public, private and mixed systems. They control people's access to needed treatment and services, with some providing shelter from financial catastrophe in the event of accident or disease (46). In many countries, health care is largely paid for out of pocket.

Irregular migrant workers are in a particularly vulnerable situation because their access to social security can be reduced by their migratory status, lack of freedom of association, isolation, exclusion and xenophobia. The only international instrument explicitly referring to the right of irregular migrants to social security is ILO Convention No. 143 (Article 9.1), which stipulates that irregular migrant workers shall have the same rights as other groups of migrant workers concerning social security benefits arising from past employment (47).

Among the surveys reviewed and analysed, the health insurance variable was found to be a good proxy for the financial risk protection indicator in SDG Target 3.8. Despite welcome examples of UHC, notably in Thailand (Chapter 4), in 15 of 25 countries covered by the MICS6 and DHS-VII surveys, international migrants were considerably less likely to have health insurance coverage than the host populations. This was also true in eight of the nine selected Latin America and Caribbean countries in the BADEHOG databank (Table 5.5). The higher coverage among international migrants in some countries might be a result of health insurance being required as part of a visa application in which employers or migrants themselves have to pay for a visa or residence permit (48,49).

As indicated in Chapter 4, there are a variety of reasons for lower coverage among migrants, including the need for nationality verification, ambiguous policy messages, administrative delays in the enrollment process, resistance of employers to hiring migrants and the voluntary or semivoluntary nature of a health insurance system. Some of these factors may be beyond the control of migrants (e.g. nationality verification requires communication between various ministries). Even when policy measures are in place to provide health insurance and ensure UHC, gaps in coverage may remain. This should be taken into consideration by countries that already have policies and by countries that are planning to integrate additional measures. A strategy to close these coverage gaps includes having migrants volunteer as health communicators directly in their communities to promote and increase health insurance coverage (46,50,51).

A study conducted among health sector representatives identified financial constraints as a primary challenge to meeting the health needs of international migrants in Indonesia,

Malaysia, Myanmar and Thailand (52). The 2019 data from the MCIS6 in Nepal highlighted the low coverage of health insurance among host and migrant populations alike. Further, the literature indicates that more recently these figures are likely to have been impacted by the COVID-19 pandemic, especially considering that Nepal is a country that sends large numbers of migrant workers abroad. Roughly 1 million Nepalese workers sought to return from their host countries during the pandemic, placing a strain on Nepal's health system as the demand for services increased with the sudden influx of returned migrants (53,54). In Thailand, the national Government communicated publicly that all migrants, regardless of their legal status, could access COVID-19 testing and treatment without financial barriers; however, this messaging was inconsistent due to limitations that included a lack of coordination and communication between departments and across HIS (55).

In Latin America, similar to the findings from the household surveys, research shows that lower proportions of migrants have health insurance than do non-migrants. Several countries, including Chile, Colombia and Mexico, have fragmented health systems that are divided between the public and private sectors, leaving many migrants insufficiently covered by the public sector through barriers such as a lack of employment and financial resources, and migratory status (56–59).

Data from 2018 indicate that only 24.5% of Venezuelan migrants in Colombia were affiliated with the health insurance system compared with 93% of those born in Colombia, and this trend was stronger among recently arrived migrants (60).

In Chile, migrants are 7.5 times more likely to report not having health insurance than the Chilean-born population (61). Social factors

Table 5.5. Health insurance coverage, by migratory status

Country or area	Survey	Year(s)	% with health insurance coverage	
			International migrants	Host population
Argentina	BADEHOG	2019	57.7	68.7
Armenia	DHS-VII	2015–2016	8.4	8.3
Benin	DHS-VII	2017–2018	1.1	1.3
Burundi	DHS-VII	2016–2017	21.6	23.2
Cameroon	DHS-VII	2018	6.6	3.0
Central African Republic	MICS6	2018–2019	1.6	0.7
Chad	MICS6	2019	3.3	0.3
Chile	BADEHOG	2017	68.7	73.6
Colombia	BADEHOG	2019	13.4	46.3
Costa Rica	BADEHOG	2018	63.0	83.6
Dominican Republic	BADEHOG	2019	17.9	46.9
Ecuador	BADEHOG	2019	27.7	36.1
Ethiopia	DHS-VII	2016	6.2	4.8
Gambia	MICS6	2018	1.3	2.0
Ghana	MICS6	2017–2018	43.2	53.2
Guinea	DHS-VII	2018	3.0	1.6
Guinea-Bissau	MICS6	2018–2019	0.8	0.8
Guyana	MICS6	2019–2020	14.6	19.9
Indonesia	DHS-VII	2017	50.5	61.3
Kosovo ^a	MICS6	2019–2020	13.3	6.8
Liberia	DHS-VII	2019–2020	3.5	4.6
Malawi	DHS-VII	2015–2016	1.7	1.6
Mali	DHS-VII	2018	5.2	5.1
Nepal	MICS6	2019	3.6	5.8
Panama	BADEHOG	2019	28.3	47.2
Paraguay	BADEHOG	2018	26.5	27.0
Sao Tome and Principe	MICS6	2019	7.7	1.3
Sierra Leone	DHS-VII	2019	3.8	5.3
Suriname	MICS6	2018	52.6	71.5
Thailand	MICS6	2019	41.9	98.0
Togo	MICS6	2017	2.3	5.3
Tonga	MICS6	2019	69.5	79.4
Uruguay	BADEHOG	2019	82.0	80.9
Zimbabwe	MICS6	2019	5.3	6.0

^a All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

may also influence how migrants seek health insurance while in host countries, potentially explaining part of the gap between health insurance coverage among migrants and non-migrants. In Costa Rica, perceptions in the migrant community of not being members of or being disaffiliated from society are challenges to accessing health care, highlighting the role that social integration and community building play (62).

5.4.3 Health and access to health care services

As a measure of progress made in pursuit of the SDGs, access to health care services covers a number of dimensions. This review looked at four of these dimensions: child health, nutrition, maternal care and FGM, and mental health.

Children's health: access to vaccines. This report discusses the health of migrant children in selected countries using the major indicator of access to vaccines. This corresponds most closely to SDG 2 (end hunger, achieve food security and improved nutrition and promote sustainable agriculture) and SDG 3 (ensure healthy lives and promote well-being for all at all ages).

Immunization of children plays a key role in ensuring healthy lives and well-being, and in protecting communities. It is pivotal to achieving the SDGs, especially in low- and middle-income countries. The MICS6 and DHS-VII surveys provide data on five vaccines received by children who are international migrants and children in host populations in countries for which data are available. Measles vaccination coverage provides a good example.

Measles is caused by one of the world's most contagious human viruses, and measles transmission within a community is not only a clear indicator of poor measles vaccination

coverage but also an effective marker indicating that vital health services are not reaching populations most at risk. Data from 8 of 15 countries or areas indicate that the percentage of international migrant children who received measles vaccine was lower than that of children in the host population (Table 5.6).

Migrant children often are faced with less consistent and less timely access to vaccines compared with non-migrant children. The obstacles include weak vaccine coverage assessments upon entry into a country, living in border areas with highly mobile transborder populations, incomplete migrant-specific data in immunization registers, language barriers and low levels of health literacy among caregivers or lack of knowledge about how to access vaccines (63–65). Policies and immunization programmes in some countries in the WHO European Region, for example, may also lack specific recommendations for immunizing migrants (66). Among displaced and mobile populations, estimating vaccine coverage is particularly challenging, as is providing accessible routine vaccination services in hard-to-reach areas (67,68). However, high immunization coverage has been possible in such contexts, as evidenced by the Thai National Immunization Programme, which has delivered high vaccination rates for children in hard-to-reach border regions, including with BCG, three doses of OPV and measles vaccines (69).

A specific barrier for irregular migrants and their children may be a lack of firewalls between the data systems of service providers and those of immigration authorities. If families are in an irregular migration situation, they may fear arrest, detention or deportation if they are detected by the authorities. For this reason, they may avoid service providers, including approaching health providers for routine immunization (70).

5.4.4 Health services and protective interventions

SDG 5 aims to "achieve gender equality and empower all women and girls", emphasizing caring for mothers and ensuring the ability of females aged 15–49 years to make informed decisions about their SRH.

Contraception. The data from the global surveys indicate that a slightly greater proportion of female international migrants in the surveyed countries used traditional methods of contraception (e.g. periodic abstinence, withdrawal or folk remedies) compared with non-migrant women, whereas

Table 5.6. Percentage of children who received measles vaccine, by migratory status

Country or area	Survey ^a	Year(s)	% of children receiving measles vaccine	
			International migrants	Host population
Benin	DHS-VII	2017–2018	45.0	47.5
Burundi	DHS-VII	2016–2017	63.0	69.3
Cameroon	DHS-VII	2018	32.7	49.9
Central African Republic ^b	MICS6	2018–2019	55.6	54.2
Ethiopia	DHS-VII	2016	39.7	41.3
Gambia ^b	MICS6	2018	86.7	85.0
Guinea	DHS-VII	2018	37.1	30.5
Indonesia	DHS-VII	2017	68.9	59.3
Jordan	DHS-VII	2017–2018	54.5	55.3
Liberia	DHS-VII	2019–2020	56.3	51.1
Malawi	DHS-VII	2015–2016	65.9	68.8
Mali	DHS-VII	2018	57.4	49.4
Nepal	MICS6	2019	92.9	85.6
Sierra Leone	DHS-VII	2019	54.8	56.6
Togo	MICS6	2017	62.7	65.5

^aDHS data refer to children born in the past 3 years who ever received measles vaccine. Children are considered to have received the vaccine if vaccination was noted on their vaccination card or reported by the mother. For MICS, the data refer to children ever given measles and rubella vaccine.

^bPlease note that the cell count is between 25 and 49.

ND: no data.

the proportions using modern contraceptive methods are similar among the different groups (Table 5.7). For example, in Burundi, 23% of female international migrants used traditional methods compared with 18% of the host population. This is in line with the

evidence presented in Chapter 2 indicating that migrants consistently use traditional contraceptive methods as opposed to more modern or effective methods, particularly when compared with non-migrants (71–73). The literature highlights that among refugees

Table 5.7. Percentage of women using traditional or modern methods of contraception, by migratory status

% using type of contraception ^a						
Country or area	Survey	Year(s)	Modern		Traditional ^a	
			International migrants	Host population	International migrants	Host population
Central African Republic ^b	MICS6	2018–2019	71.0	80.8	29.0	18.3
Chad ^b	MICS6	2019	75.9	75.5	24.1	23.3
Ethiopia ^b	DHS-VII	2016	93.3	96.3	6.7	3.0
Gambia	MICS6	2018	98.5	97.5	0.5	0.1
Ghana	MICS6	2017–2018	87.5	88.5	10.9	9.6
Guinea ^b	DHS-VII	2018	96.8	93.4	3.2	2.3
Guinea-Bissau	MICS6	2018–2019	96.4	96.5	3.6	3.0
Indonesia	DHS-VII	2017	53.6	44.4	13.8	11.0
Jordan	DHS-VII	2017–2018	67.6	70.8	32.4	29.2
Kosovo ^c	MICS6	2019–2020	17.0	14.3	83.0	85.4
Kyrgyzstan	MICS6	2018	100.0	95.8	0.0	4.0
Lesotho ^b	MICS6	2018	94.9	97.9	5.1	0.9
Liberia	DHS-VII	2019–2020	94.6	96.8	4.5	2.9
Malawi	DHS-VII	2015–2016	94.7	97.8	2.6	1.5
Mali	DHS-VII	2018	93.7	94.8	4.8	2.6
Montenegro	MICS6	2018	60.9	53.9	36.2	45.1
Nepal	MICS6	2019	96.1	92.4	3.9	7.4
Sierra Leone	DHS-VII	2019	96.6	97.9	3.4	0.7
Suriname ^b	MICS6	2018	100.0	98.4	0.0	0.8
Thailand	MICS6	2019	98.3	95.7	1.1	4.2
Togo	MICS6	2017	85.7	88.6	14.3	10.7
Tonga ^b	MICS6	2019	96.0	78.6	4.0	13.8
Zimbabwe ^b	DHS-VII	2015	100.0	98.1	0.0	1.7

^aTraditional methods of birth control include periodic abstinence and withdrawal.

^bPlease note that the cell count is between 25 and 49.

^cAll references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

and international migrants in some low- and middle-income countries in Africa and Asia, for example, only small proportions use long-acting reversible contraception, while Venezuelan migrants in Brazil report there is limited availability of these methods in health centres (74–76). The reasons given for not using modern contraceptive methods include limited knowledge of and access to family planning services, unsupportive sexual partners and concerns about side-effects (77,78). In Australia, a study conducted among Japanese migrant women noted that the migrants preferred the contraceptive practice of *sotodashi* (i.e. the combined use of condoms and withdrawal), and Chinese migrants cited beliefs about hormonal contraception causing side-effects, such as disrupting their inner balance (79,80). Even in some countries in the EU, where contraception is available and free, language barriers and a lack of knowledge pose challenges to migrants accessing family planning services (81–83). However, in 13 of 33 countries or areas, a lower proportion of female international migrants used traditional methods compared with non-migrant women. For example, in Armenia, 49.3% of female international migrants used traditional methods, compared with 57.1% of women in the host population. The reasons for this need to be further explored in relation to education and other socioeconomic factors.

Number of antenatal care visits. The review suggested that pregnant women in host populations have better access to ANC, as indicated by the number of ANC visits. In the majority of countries surveyed by the MICS6 and DHS-VII, pregnant international migrants have at most three ANC visits compared with four or more for women in host populations (Table 5.8).

Similar proportions of international migrant and non-migrant women had ANC visits in Jordan, as shown in Table 5.8, and as reported by women in Lebanon, two countries in the WHO Eastern Mediterranean Region. The literature review presented in Chapter 3 regarding ANC visits consistently showed that refugees and migrants complete fewer visits than host populations, although evidence varied regarding the size of the gap. For example, a nationally representative MICS in the occupied Palestinian territory, including east Jerusalem, in 2019–2020 indicated that ANC coverage was lower among refugees (88.2%) than among non-refugees (95.9%) (84).

Although Table 5.8 shows that the proportions of migrants and host populations in Thailand that have four or more ANC visits are similar (88.5% and 90.6%, respectively), migrant women along the Thailand–Myanmar border face barriers in attending ANC visits. Evidence indicates that international migrant women along this border delay their visits until the third trimester, citing the long distances that must be travelled as a major challenge (85). Women delaying visits until the third trimester had to travel 46% further compared with women who attended visits during their first trimester (85).

Women and girls who have undergone FGM. SDG Target 5.3 aims to eliminate the practice of FGM by 2030. FGM is a violation of human rights because there is no medical justification for damaging or removing healthy, normal tissue, especially for a procedure that prevents the natural functions of women's bodies (86).

Table 5.8. Percentage of women attending ANC, by number of visits and migratory status

Country or area	Survey	Year(s)	% attending for each number of ANC											
			0			1			2-3			≥4		
			International migrants	Host population	International migrants	Host population	International migrants	Host population	International migrants	Host population	International migrants	Host population		
Armenia ^a	DHS-VII	2015–2016	0.0	0.3	0.0	0.1	0.0	0.0	2.4	97.6	95.8			
Benin	DHS-VII	2017–2018	10.0	11.5	6.4	6.2	28.9	28.4	51.7	51.2				
Burundi	DHS-VII	2016–2017	0.0	0.7	2.4	2.0	53.4	47.6	44.2	49.6				
Cameroon	DHS-VII	2018	18.4	12.7	0.0	2.3	20.8	20.0	59.2	64.0				
Central African Republic ^a	MICS6	2018–2019	0.0	0.0	7.3	7.0	34.1	33.4	56.1	55.0				
Ethiopia	DHS-VII	2016	13.7	34.7	4.1	4.7	32.9	24.2	47.9	36.1				
Gambia	MICS6	2018	0.0	0.0	2.5	1.7	24.3	21.4	72.8	76.6				
Ghana	MICS6	2017–2018	0.0	0.0	1.3	2.0	12.7	10.1	86.1	87.3				
Guinea	DHS-VII	2018	8.4	14.5	5.3	11.3	28.2	37.2	52.7	34.3				
Guinea-Bissau	MICS6	2018–2019	0.0	0.0	2.5	1.6	15.1	17.1	82.4	81.2				
Indonesia	DHS-VII	2017	6.2	3.3	0.0	1.3	6.2	6.7	86.3	88.2				
Jordan	DHS-VII	2017–2018	3.3	2.6	1.6	2.1	6.1	2.9	88.6	91.6				
Kosovo ^{a,b}	MICS6	2019–2020	0.0	0.0	0.0	0.7	16.7	3.1	83.3	95.5				
Liberia	DHS-VII	2019–2020	1.4	2.2	0.9	1.7	6.1	9.4	89.7	84.8				
Malawi	DHS-VII	2015–2016	1.3	1.7	5.7	1.9	42.7	45.1	50.3	50.8				
Mali	DHS-VII	2018	10.4	22.9	1.0	5.8	28.7	27.7	57.4	41.8				
Montenegro	MICS6	2018	0.0	0.0	4.3	0.6	1.4	1.7	94.2	97.8				
Nepal	MICS6	2019	0.0	0.0	6.1	2.0	17.3	15.4	76.5	82.7				

Table 5.8 contd

		% attending for each number of ANC											
		0			1			2-3			≥4		
Country or area	Survey	Year(s)	International migrants	Host population	International migrants	Host population	International migrants	Host population	International migrants	Host population	International migrants	Host population	
Sierra Leone	DHS-VII	2019	1.6	1.4	2.5	0.8	4.9	7.0	77.0	79.5			
Suriname ^a	MICS6	2018	0.0	0.0	2.6	1.3	5.3	3.8	76.3	77.3			
Thailand	MICS6	2019	0.0	0.0	1.9	1.1	3.8	3.1	88.5	90.6			
Togo	MICS6	2017	0.0	0.0	3.2	3.7	39.4	38.1	57.3	57.9			
Zimbabwe ^a	MICS6	2019	0.0	0.0	5.4	2.1	18.9	22.2	75.7	75.0			

^aPlease note that the cell count is between 25 and 49.

^bAll references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

The proportions of women and their daughters who had undergone FGM in the selected countries is similar between international migrants and non-migrants in 9 out of 11 countries in sub-Saharan Africa for which MICS6 and DHS-VII survey data were available (Table 5.9). However, in Guinea-Bissau and Togo, the proportions of women and their daughters experiencing FGM is higher among migrants.

Evidence that was based on the country of birth and that compared Somali refugees in Kenya with local populations found little difference between those who had experienced FGM and those who had not. However, the literature does highlight that living separately from a parent, especially a mother, is significantly associated with being less likely to experience FGM (87). This finding may support other research showing that the custom of FGM might be influenced by a mother's assumptions that FGM will increase her daughter's marriageability (88).

The data in Table 5.9 contrast with research findings from the WHO Eastern Mediterranean Region. In Saudi Arabia, Saudi nationals were less likely to have experienced FGM compared with migrants from countries such as Egypt, Somalia and Yemen (89).

Literature from the WHO European Region has identified the presence of FGM among refugees and international migrants originating from countries in eastern Africa and the Middle East. Social factors influence these decisions, including the duration of stay in the host country and cultural norms. Evidence suggests that a longer stay in a host country where FGM is not promoted or allowed is positively associated with rejecting FGM (90). The data analysed in this chapter do not provide information on the duration of stay, but the prevalence of FGM seems to be at comparable levels between host and international migrant populations. Further research suggests that gender-

Table 5.9. Percentage of women (15–49 years) and their daughters (0 months to 14 years) in the WHO African Region who have experienced FGM, by migratory status

Country or area	Survey	Year(s)	% experiencing FGM			
			Women		Daughters	
			International migrants	Host population	International migrants	Host population
Central African Republic	MICS6	2018–2019	30.4	34.3	3.3	2.2
Chad	MICS6	2019	46.9	45.4	8.4	10.9
Ethiopia	DHS-VII	2016	65.7	69.7	17.5	24.7
Gambia	MICS6	2018	62.2	75.8	38.7	50.2
Ghana	MICS6	2017–2018	9.3	11.8	0.6	0.6
Guinea	DHS-VII	2018	96.8	96.0	52.2	41.4
Guinea-Bissau	MICS6	2018–2019	70.0	51.6	33.1	25.8
Liberia	DHS-VII	2019–2020	38.7	38.4	ND	ND
Mali	DHS-VII	2018	80.5	84.9	70.5	69.5
Sierra Leone	DHS-VII	2019	88.5	89.2	14.9	10.0
Togo	MICS6	2017	11.7	7.1	0.8	0.0

ND: no data.

related concepts about men's virility and sexual pleasure influence the acceptance of medicalized defibulation among women from some African countries living in a European country (91). Estimating the prevalence of FGM among international migrants in Europe is difficult; however, a combination of direct and indirect methods can be used. Direct methods include collecting data through surveys conducted among the target population, while indirect methods could include utilizing secondary data sources (92).

Intimate partner violence against women.

SDG Target 5.2 aims to "eliminate all forms of violence against all women and girls in the public and private spheres", while for SDG 16, which aims to promote peaceful and inclusive societies, Targets 16.1 and 16.2 seek to reduce all forms of violence and violence-related deaths (93).

There is widespread evidence that female refugees and international migrants experience high levels of sexual violence (94–97). Studies in the WHO Eastern Mediterranean Region found evidence of increased IPV and forced pregnancy among refugees in several settings (98,99). Research in the United States indicated that migrant women from Latin American countries faced forms of SGBV and IPV linked not only to social conditions in their country of origin but also to changing power dynamics related to migration and acculturation (96,100). The evidence regarding women subjected to physical or sexual violence by their current husband or partner is mixed in the data from DHS-VII (Table 5.10). In some countries, such as Cameroon and Nepal, migrant women reported experiencing more violence than non-migrant women did; this contrasted with other countries, such as Sierra Leone and Zimbabwe, where they reported experiencing less violence than non-migrant women.

Table 5.10. Percentage of women (15–49 years) subjected to physical or sexual violence by a husband or partner during the previous 12 months, by migratory status

Country or area	Survey	Year(s)	% of women experiencing physical or sexual violence			
			International migrants		Host population	
			Physical violence ^a	Sexual violence	Physical violence	Sexual violence
Armenia	DHS-VII	2015–2016	3.0 ^b	0.0 ^b	3.1	0.3 ^b
Benin	DHS-VII	2017–2018	9.4	5.6 ^b	11.7	5.6
Burundi	DHS-VII	2016–2017	16.6	21.9	18.0	18.6
Cameroon	DHS-VII	2018	25.9 ^b	11.8 ^b	15.3	6.0
Ethiopia	DHS-VII	2016	5.5 ^b	3.6 ^b	14.3	5.6
Jordan	DHS-VII	2017–2018	7.5	1.2 ^b	10.1	2.7
Liberia	DHS-VII	2019–2020	35.5	6.6 ^b	33.7	6.9
Malawi	DHS-VII	2015–2016	16.2 ^b	16.2 ^b	16.3	14.3
Mali	DHS-VII	2018	14.6 ^b	9.0 ^b	15.2	5.4
Nepal	DHS-VII	2016	12.0	6.7 ^b	9.8	5.3
Sierra Leone	DHS-VII	2019	20.5 ^b	3.8 ^b	36.1	6.1
Zimbabwe	DHS-VII	2015	10.0 ^b	4.3 ^b	15.9	7.7

^a The definitions of different types of spousal violence are detailed in Croft et al. (101).

^b Due to a small sample size (< 25), caution should be used in interpreting these data.

5.4.5 Mental health

The need to improve mental health is covered by SDG 3, which aims to ensure healthy lives and promote well-being for all, and SDG 16, which aims to promote peaceful and inclusive societies for sustainable development, among other goals. The literature reviewed in Chapter 3 suggested there were higher rates of depression and anxiety among certain groups of refugees and migrants during different phases of migration, resulting from factors such as family separation, community and workplace stressors, and social exclusion (102). PTSD has been observed among forced migrants, such as refugees affected by conflict and war, particularly among youth and adolescents (103), and there is recent evidence indicating that social disadvantages experienced before and after migration are significantly associated with psychosis (104).

The surveys reviewed do not provide data directly pertinent to mental health but instead collect self-reported (i.e. subjective) information. The relevant indicators are found in MICS6 as well as in the PISA surveys, and include self-assessments of health and feelings of discrimination.

Self-reported health. Self-reported health provides an indication of how individuals perceive their health and well-being. Evidence from the literature indicates that international migrants who report poorer health status than host populations may do so in part due to their host country's migration policies, attitudes towards migrants and the social environment.

MIPEX, discussed in Chapter 4, uses a three-category framework that describes national policies as inclusive (i.e. they promote societal participation and citizenship irrespective of labour-market attachment, and cultural and political tolerance, which earlier versions of the framework termed multicultural),

assimilationist (i.e. they promote societal participation and citizenship irrespective of labour-market attachment, but with an emphasis on sociopolitical conformity) or exclusionist (i.e. access to welfare support and services are conditional on labour-market attachment, and opportunities for citizenship are scarce). International migrants living in countries termed exclusionist are more likely to report mental health issues, such as depressive symptoms, to report social discrimination and to have poorer self-rated health than migrants in multicultural countries (105–107). Also, migrants who experience restrictive entry policies (e.g. they have only temporary visa status or are put in detention) or integration policies (e.g. there is limited welfare eligibility, and there are documentation requirements) have been found to be at increased risk for poorer self-rated health and mental health (108). Health inequalities are most common in countries in the exclusionist category, even after adjusting for a migrant's SES (105). The impact of government policies, particularly those that are restrictive and exclusionist in nature, goes beyond self-reported health status, as there may be an association between such policies and increased mortality (106).

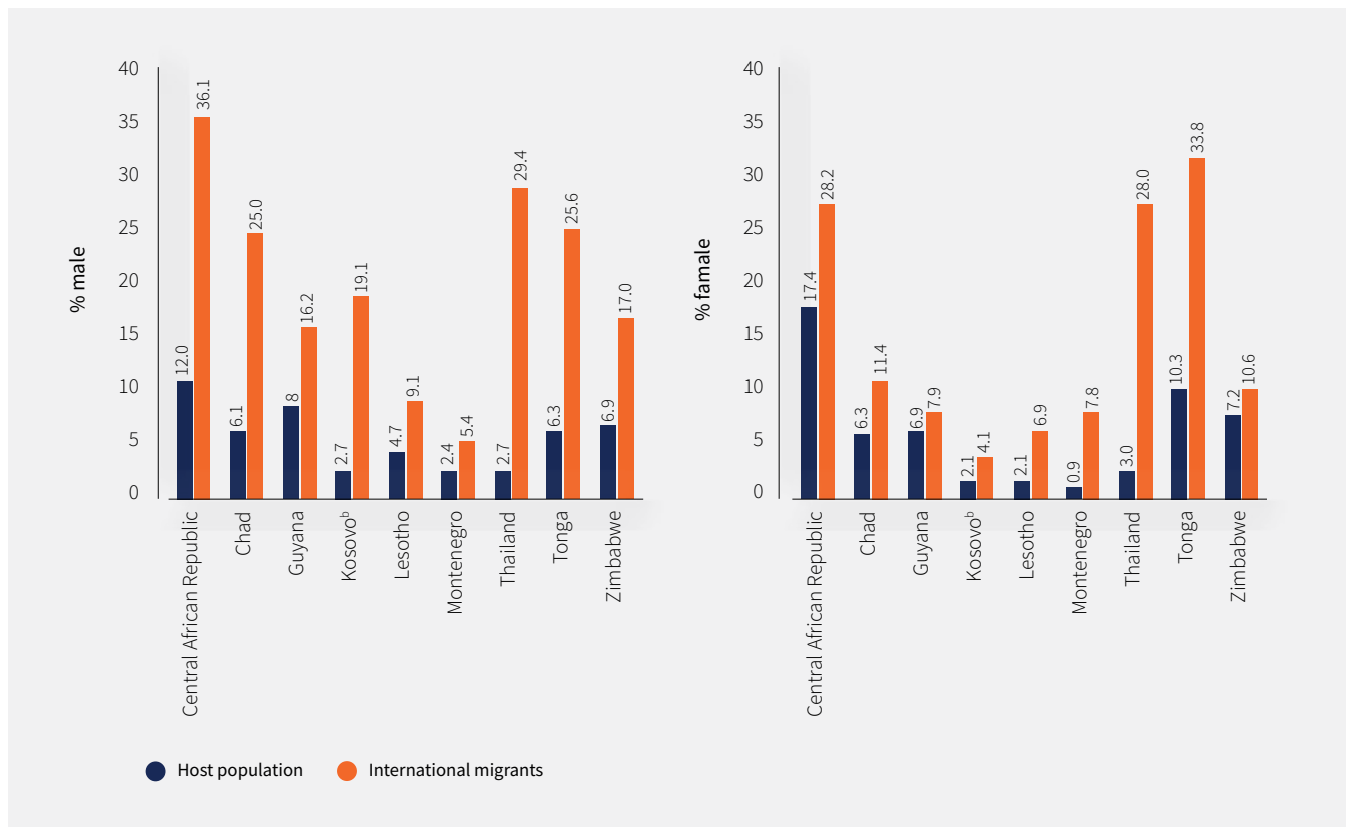
The literature identifies other factors beyond national migration policies that have been associated with self-rated health. Lower levels of social cohesion and perceived discrimination against refugees and international migrants have also been associated with poorer health outcomes among refugees and international migrants living in several high-income countries and some middle-income countries (109–111). Individual factors, such as age, gender and country of origin, also influence perceptions of health and well-being (112–115). Self-rated health can decline with increasing age, while gender inequalities may have an impact on girls' perceptions of their well-being.

The identified literature explored the complexity of assessing illness, particularly mental illness, among refugees and migrants. Not all refugees and migrants are exposed to the same risks, leading to varying prevalences of mental disorders (102,116,117). Depending on the host population's prevalence of mental illness, refugees and migrants may have lower, similar or higher prevalence (118). Additionally, European doctors may struggle with properly classifying mental health disorders in refugees if they are using conventional diagnostic categories (119–121). Mental health issues are often highly stigmatized, and self-stigmatization can be higher in migrant groups (122).

Feelings of discrimination or harassment due to ethnicity or migratory status.

Feelings and experiences of discrimination and harassment can contribute to depression and other health problems, including self-harm and suicide (87,93,123,124). In all of the nine selected countries surveyed (Fig 5.1) in the MICS6, higher percentages of both male and female international migrants reported having felt discrimination and harassment compared with the host population. This pattern is consistent with studies carried out in various WHO regions. International migrants reported discrimination or harassment due to their

Fig. 5.1. Percentage of males and females who self-reported discrimination or harassment due to their ethnicity or migratory status^a, 2015–2020



^aEthnicity and migratory status are not the same. However, the choice available to respondents in the Multiple Indicator Cluster Survey 6, section VT22 was "Ethnic or immigration origin", so the results are reported together here.

^bAll references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

ethnicity or migratory status in a variety of settings in their host country, including the workplace, during health care visits and in social settings; these feelings were often linked to poor or worsening mental health (125–131). Often, these experiences are compounded by additional factors, including facing discrimination due to their legal status, disability, gender, HIV status and engagement in sex work, among others (125–131). These intersecting identities highlight the various challenges international migrants may face, often at higher rates than non-migrants.

5.4.6 Drinking-water, sanitation and hygiene as a health determinant

SDG 6, which aims to ensure the availability and sustainable management of water and sanitation for all, focuses on WASH as a major determinant of global health. WASH-related data disaggregated by migratory status are available from the countries surveyed by the MICS6 and DHS-VII. Similar to other data presented in this chapter, this subject needs further investigation.

The MICS6 and DHS-VII surveys indicate that international migrants in a majority of the selected countries have better toilet facilities compared with the host population. In 18 out of the 27 countries, a larger percentage of international migrants had access to flush toilets than in the host population (Table 5.11). Data from the MICS6 and DHS-VII surveys indicate that lower percentages of international migrants in rural areas have access to flush toilets compared with those in the urban areas. In Indonesia, for example, 86% of urban-dwelling international migrants had access to flush toilets compared with only 79% of those in rural locations.

Access to improved toilet facilities is influenced by determinants such as employment and

geography. For example, migrants working as long-distance truck drivers in Zambia often resort to using bushes as toilets, given the lack of sanitation services along the road (133). Somali refugee women living in rural northern Kenya lack improved sanitation services, and 96% report using bushes as toilets due to the lack of latrines in their households. Notably, personal safety is highlighted as a major concern of open defecation in bushes, rather than hygiene. Somali women reported worries about safety, including fears of physical and sexual violence, the risk of encountering wild animals, and privacy concerns (134).

5.5 Summary

As the deadline for meeting the SDGs approaches, there is still time to meet their goals and targets, but only if practical steps are taken urgently. Refugees and migrants are largely invisible in official data relating to the health SDGs because of the lack of disaggregated data. Even fewer data are available for hard-to-reach populations, hampering efforts to leave no one behind. It is, therefore, hard to understand and address the needs of refugees and migrants, develop inclusive public health approaches and track progress towards national and global goals. This invisibility in data also may make decision-makers and health systems oblivious to the public health challenges within their borders.

This chapter has highlighted the difficulties of finding internationally comparable, representative and validated data about the health of refugees and migrants. However, equally important, the chapter also illustrates the great potential that the DHS, MICS and other surveys have if certain modifications and adaptations can be introduced to these internationally supported surveys.

Table 5.11. Percentage of respondents by type of toilet facility and migratory status

Country or area	Survey	Year(s)	% of respondents and type of toilet					
			Flush toilet		Pit toilet latrine		No facility/bush/field	
			International migrants	Host population	International migrants	Host population	International migrants	Host population
Armenia	DHS-VII	2015–2016	77.5	73.0	22.5	27.0	15.9	0.0
Benin	DHS-VII	2017–2018	10.7	6.1	37.2	37.7	8.2	54.6
Burundi	DHS-VII	2016–2017	3.4	6.7	94.6	91.3	29.6	1.7
Cameroon	DHS-VII	2018	20.9	14.2	69.8	80.0	30.2	3.6
Central African Republic	MICS6	2018–2019	3.9	1.5	79.1	65.5	53.5	22.6
Chad	MICS6	2019	9.3	4.0	39.3	21.7	16.9	65.5
Ethiopia	DHS-VII	2016	14.9	7.6	67.7	58.1	33.8	32.9
Gambia	MICS6	2018	27.9	28.1	70.1	70.7	41.5	1.1
Ghana	MICS6	2017–2018	19.9	22.7	43.9	48.2	13.5	24.5
Guinea	DHS-VII	2018	18.7	12.6	65.3	72.2	20.1	12.6
Guinea-Bissau	MICS6	2018–2019	18.5	15.6	73.5	71.6	65.5	12.4
Guyana	MICS6	2019–2020	64.9	65.5	31.6	33.2	3.5	1.0
Indonesia	DHS-VII	2017	81.9	87.5	7.6	3.1	0.0	9.3
Jordan	DHS-VII	2017–2018	88.0	95.4	11.9	4.6	0.3	0.0
Lesotho	MICS6	2018	6.9	3.5	77.0	74.0	3.4	22.0
Liberia	DHS-VII	2019–2020	36.5	26.9	29.9	26.2	14.2	42.2
Malawi	DHS-VII	2015–2016	4.1	4.1	87.7	90.6	10.8	4.9
Mali	DHS-VII	2018	9.5	4.9	81.3	81.0	26.9	12.5
Montenegro	MICS6	2018	98.4	99.3	0.6	0.6	0.0	0.1
Nepal	MICS6	2019	85.4	89.8	5.7	4.1	0.0	4.3
Sao Tome and Principe	MICS6	2019	51.5	25.7	30.3	28.3	0.0	45.2
Sierra Leone	DHS-VII	2019	10.1	9.1	73.4	70.4	27.4	17.5
Suriname	MICS6	2018	89.5	88.4	6.4	8.9	3.5	1.7
Thailand	MICS6	2019	99.2	99.6	0.4	0.0	0.0	0.2
Togo	MICS6	2017	21.4	24.8	30.5	30.0	9.4	42.5
Tonga	MICS6	2019	96.3	88.9	2.4	9.9	1.2	0.0
Zimbabwe	MICS6	2019	49.4	41.5	35.0	38.0	4.4	20.3

This chapter did not consider the majority of data sources that originate from routine HIS. It is generally more challenging to use such data sets for global and regional, or even national, especially in the case of refugees and migrants, because data on the determinants

of health, such as migratory status, are not registered. Even where such information is registered, ensuring the confidentiality of such data is extremely important. These challenges are not insurmountable, and it is urgent to comprehensively review all data sources,

including administrative records. Only then will it be possible to assess where resources can be best invested, including to strengthen national capacities, enhance national HIS and introduce innovative approaches to modernize national information and statistical systems.

The following approaches should be considered to address the main issues discussed in this chapter.

- Develop a consensus on definitions and on a set of essential variables that can be used to determine migratory status in all data collection systems to ensure comparability and clarity, including in household surveys, specialized quantitative assessments and routine HIS.
- Adapt sampling designs and approaches in surveys to ensure good representation of refugees and migrants by using strategies such as oversampling.
- Collect qualitative data to gain deeper insights into the health status of and health determinants for refugees and migrants.
- Strengthen the capacity in countries for collecting, analysing and reporting on health outcomes and burden of disease by key characteristics including sex, age and disability, as well as the ability for further disaggregation by subgroups of refugees and migrants, such as labour migrants, irregular migrants, asylum seekers and IDPs.
- Ensure that data collected to safeguard health are not used for non-health-related purposes by guaranteeing the confidentiality of the data and preventing unauthorized access.
- Explore various sources of information on migration to cover countries of origin, transit and destination. Sources include civil registration vital statistics systems, administrative data from government HIS and, potentially, the untapped data sets collected by major commercial enterprises.
- Investigate approaches that address the interoperability of data sets (22) – that is, the linking of different data sets to generate comprehensive data about a given group of individuals. This would help to ensure interoperability of databases at national and global levels to permit the exchange of data and generation of comprehensive data sets.

Refugees and migrants are largely invisible in official data relating to the health SDGs because of the lack of disaggregated data. It is, therefore, hard to understand and address the needs of refugees and migrants, develop inclusive public health approaches and track progress towards national and global goals.

References

1. Wolf L. What gets measured gets done: key performance indicators. In: California Digital Library [website]. Oakland (CA): Regents of the University of California; 2010 (<https://cdlib.org/cdlinfo/2010/09/15/what-gets-measured-gets-done-key-performance-indicators/>, accessed 11 February 2022).
2. Sustainable Development Goals: background on the goals. In: United Nations Development Programme, Oslo Governance Centre [website]. Oslo: United Nations Development Programme; 2022 (<https://www.undp.org/sdg-accelerator/background-goals>, accessed 11 February 2022).
3. Resolution 55/2. United Nations Millennium Declaration. In: Fifty-fifth session, United Nations General Assembly, 6–8 September 2000. New York: United Nations; 2000 (A/RES/55/2; <https://digitallibrary.un.org/record/422015?ln=en>, accessed 18 May 2022).
4. Resolution A/RES71/313 (Annex). Global Indicator Framework for the Sustainable Development Goals and Targets of the 2030 Agenda for Sustainable Development. In: Seventy-first session of the United Nations General Assembly, July 2017. New York: United Nations; 2017 (https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202022%20refinement_Eng.pdf, accessed 19 January 2022).
5. Resolution A/RES/70/1. Transforming our world: the 2030 Agenda for Sustainable Development. In: Seventieth session, United Nations General Assembly, 25 September 2015. New York: United Nations; 2015 (https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E, accessed 19 January 2022).
6. Roser M, Ortiz-Ospina E, Ritchie H, Mispy J. Sustainable Development Goal 17: revitalize the global partnership for sustainable development. In: SDG tracker [website]. Oxford: Global Change Data Lab; 2021 (<https://sdg-tracker.org/global-partnerships>, accessed 19 January 2022).
7. United Nations Statistical Commission. Implementing the 2020 World Programme on Population and Housing Censuses during the COVID-19 pandemic. In: United Nations Statistics Division [website]. New York: United Nations Statistics Division; 2021 (<https://unstats.un.org/unsd/statcom/52nd-session/side-events/20210225-population-and-housing-censuses-during-the-covid-19-pandemic/>, accessed 11 February 2022).
8. Contreras-González IM, Markhof Y, Gonzales Morales L, Wollburg PR, Zezza A. Dealing with disruption: national statistical offices are adjusting to continued challenges as COVID-19 keeps affecting their operations. In: World Bank Blogs [website]. Washington (DC): World Bank; 2020 (<https://blogs.worldbank.org/opendata/dealing-disruption-national-statistical-offices-are-adjusting-continued-challenges-covid>, accessed 11 February 2022).
9. Resolution WHA61.17. Health of migrants. In: Sixty-first World Health Assembly, Geneva, 19–24 May 2008. Resolutions and decisions. Annexes. Geneva: World Health Organization; 2008:23–5 (WHA61/2008/REC/1; https://apps.who.int/gb/ebwha/pdf_files/WHA61-REC1/A61_REC1-en.pdf, accessed 23 June 2022).
10. Resolution A/71/L.1. New York declaration for refugees and migrants. In: Seventy-first session, United Nations General Assembly, New York, 13 September 2016. New York: United Nations; 2016 (<https://digitallibrary.un.org/record/840982>, accessed 17 November 2021).
11. The global compact on refugees. New York: United Nations; 2021 (<https://www.unhcr.org/the-global-compact-on-refugees.html>, accessed 4 October 2021).
12. Resolution A/RES/73/195. Global compact for safe, orderly and regular migration. In: Seventy-third session, United Nations General Assembly, New York, 11 January 2019. New York: United Nations; 2019 (https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_73_195.pdf, accessed 6 August 2021).
13. Practical guidebook on data disaggregation for the Sustainable Development Goals. Manila: Asian Development Bank; 2021 (<https://www.adb.org/sites/default/files/publication/698116/guidebook-data-disaggregation-sdgs.pdf>, accessed 4 October 2021).
14. Interlinkages of the 2030 Agenda Sustainable Development Goals. In: 8th Meeting of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators, 5–8 November 2018, Stockholm, Sweden. New York: United Nations Statistical Commission Interlinkages Working Group of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators; 2018 (https://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-08/5a_Cara%20Williams_Canada_Interlinkages_Report_SlideDoc.pdf, accessed 21 June 2022).
15. How immigrants contribute to South Africa's economy. Paris: Organisation for Economic Co-operation and Development, International Labour Organization; 2018 (https://www.oecd-ilibrary.org/development/how-immigrants-contribute-to-south-africa-s-economy_9789264085398-en, accessed 1 December 2021).

16. Castles S. Development and migration or migration and development: what comes first? *Asian Pac Migr J.* 2009;18(4):441–71. doi:10.1177/011719680901800401.
17. IOM institutional strategy on migration and sustainable development. Geneva: International Organization for Migration; 2020 (<https://publications.iom.int/system/files/pdf/iom-institutional-strategy.pdf>, accessed 19 January 2022).
18. Mosler Vidal E. Leave no migrant behind: the 2030 Agenda and data disaggregation. Geneva: International Organization for Migration; 2021 (https://publications.iom.int/system/files/pdf/Migrants-in-the-SDGs_5.pdf, accessed 4 October 2021).
19. UN Statistical Commission adopts 36 changes to SDG indicators. In: International Institute for Sustainable Development SDG Knowledge Hub [website]. Winnipeg: International Institute for Sustainable Development; 2020 (<https://sdg.iisd.org/443/news/un-statistical-commission-adopts-36-changes-to-sdg-indicators/>, accessed 17 November 2021). 2021).
20. IOM migration data strategy in brief: informing policy and action on migration, mobility and displacement (2020–2025). Geneva: International Organization for Migration; 2021 (<https://publications.iom.int/system/files/pdf/IOM-Migration-Data-Strategy-Overview.pdf>, accessed 2 January 2022).
21. A pilot study on disaggregating SDG indicators by migratory status. Geneva: International Organization for Migration; 2018 (https://publications.iom.int/system/files/pdf/a_pilot_study_on_disaggregating_sdg_indicators.pdf, accessed 16 January 2022).
22. Collection and integration of data on refugee and migrant health in the WHO European Region: technical guidance. Copenhagen: WHO Regional Office for Europe; 2020 (<https://apps.who.int/iris/handle/10665/337694>, accessed 12 November 2021).
23. Stroetmann KA. Health system efficiency and eHealth interoperability: how much interoperability do we need? In: Rocha A, Correia AM, Tan FB, Stroetmann KA, editors. *New perspectives in information systems and technologies*, volume 2. Cham: Springer; 2014:395–406.
24. International migrant stock 2019. New York: United Nations Department of Economic and Social Affairs; 2020 (POP/DB/MIG/Stock/Rev.2020; https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesa_pd_2020_international_migrant_stock_documentation.pdf, accessed 6 November 2021).
25. Designing household survey samples: practical guidelines. New York: United Nations Department of Economic and Social Affairs; 2005 (<https://unstats.un.org/unsd/demographic/sources/surveys/handbook23june05.pdf>, accessed 19 January 2022).
26. Sampling and household listing manual: demographic and health surveys methodology. Calverton (MD): Measure DHS, ICF International; 2012 (https://dhsprogram.com/pubs/pdf/DHSM4/DHS6_Sampling_Manual_Sept2012_DHSM4.pdf, accessed 19 January 2022).
27. Bonevski B, Randell M, Paul C, Chapman K, Twyman L, Bryant J et al. Reaching the hard-to-reach: a systematic review of strategies for improving health and medical research with socially disadvantaged groups. *BMC Med Res Methodol.* 2014;14:42. doi:10.1186/1471-2288-14-42.
28. Marpsat M, Razafindratsima N. Survey methods for hard-to-reach populations: introduction to the special issue. *Methodol Innov.* 2010;5(2):3–16. doi:10.4256/mio.2010.0014.
29. Edwards A. "Refugee" or "migrant" – which is right? Geneva: Office of the United Nations High Commissioner for Refugees; 2015 (<https://www.unhcr.org/news/latest/2016/7/55df0e556/unhcr-viewpoint-refugee-migrant-right.html>, accessed 18 November 2021).
30. Glossary on migration. Geneva: International Organization for Migration; 2019 (https://publications.iom.int/system/files/pdf/iml_34_glossary.pdf, accessed 19 January 2022).
31. Recommendations on statistics of international migration, revision 1. New York: United Nations Department of Economic and Social Affairs; 1998 (https://unstats.un.org/unsd/publication/seriesm/seriesm_58rev1e.pdf, accessed 9 January 2022).
32. Krieger J, Higgins DL. Housing and health: time again for public health action. *Am J Public Health.* 2002;92(5):758–68. doi:10.2105/ajph.92.5.758.
33. Howden-Chapman P, Roebbel N, Chisholm E. Setting housing standards to improve global health. *Int J Environ Res Public Health.* 2017;14(12):1542. doi:10.3390/ijerph14121542.
34. Soeiro RE, Rocha L, Surita FG, Bahamondes L, Costa ML. Period poverty: menstrual health hygiene issues among adolescent and young Venezuelan migrant women at the northwestern border of Brazil. *Reprod Health.* 2021;18(1):238. doi:10.1186/s12978-021-01285-7.
35. Evans GW. The built environment and mental health. *J Urban Health.* 2003;80(4):536–55. doi:10.1093/jurban/jtg063.
36. WHO housing and health guidelines. Geneva: World Health Organization; 2018 (<https://apps.who.int/iris/handle/10665/276001>, accessed 20 November 2021).
37. Chepo M, Astorga-Pinto S, Cabieses B. Atención inicial de migrantes en Chile: iniciativa en atención primaria de salud a un año de su implementación [Initial care for migrants in Chile: status of a primary health care initiative after one year of implementation]. *Rev Panam Salud Publica.* 2019;43:e71 (in Spanish). doi:10.26633/RPSP.2019.71.

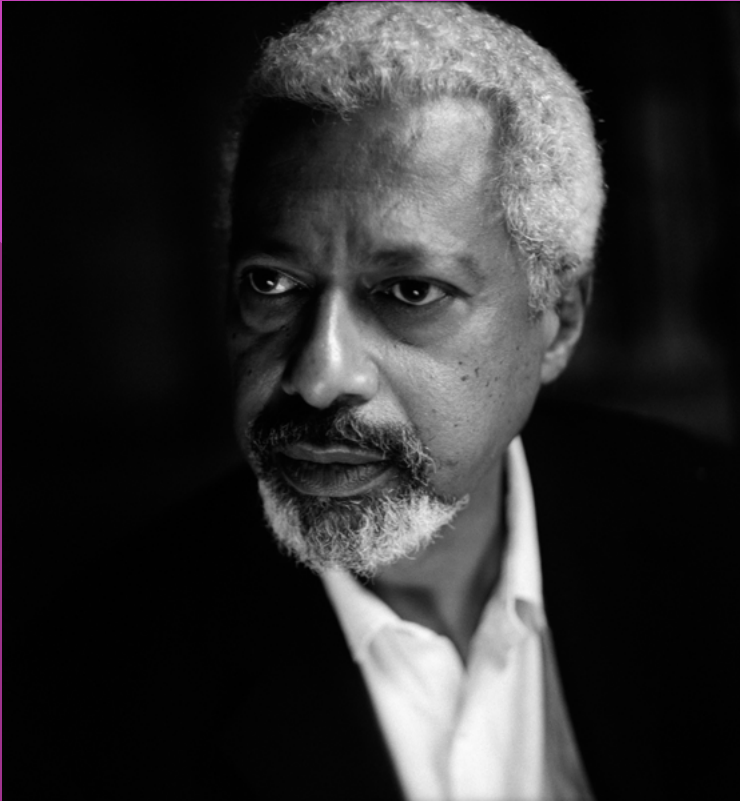
38. Hanley J, Ives N, Lenet J, Hordyk S-R, Walsh C, Ben Soltane S et al. Migrant women's health and housing insecurity: an intersectional analysis. *Int J Migr Health Soc Care*. 2019;15(1):90–106. doi:10.1108/IJMHS-05-2018-0027.
39. Hernández-Vásquez A, Vargas-Fernández R, Rojas-Roque C, Bendezu-Quispe G. Factors associated with the non-utilization of healthcare services among Venezuelan migrants in Peru. *Rev Peru Med Exp Salud Publica*. 2019;36(4):583–91. doi:10.17843/rpmesp.2019.360.4654.
40. Villalobos NVF, Montoya MPA. Factores relacionados con los casos de tuberculosis en Costa Rica, 2012–2015 [Factors related to tuberculosis cases in Costa Rica, 2012–2015]. *Rev Cuba Salud Publica*. 2020;46(3) (in Spanish; <http://www.revsaludpublica.sld.cu/index.php/spu/article/view/1455>, accessed 23 June 2022).
41. Tan EDD, Davis WA, Davis TME. Changes in characteristics and management of Asian and Anglo-Celts with type 2 diabetes over a 15-year period in an urban Australian community: the Fremantle Diabetes Study. *J Diabetes*. 2016 8(1):139–47. doi:10.1111/1753-0407.12267.
42. Alkhamis MA, Youha SA, Khajah MM, Haider NB, Alhardan S, Nabeel A. Spatiotemporal dynamics of the COVID-19 pandemic in the State of Kuwait. *Int J Infect Dis*. 2020;98:153–60. doi:10.1016/j.ijid.2020.06.078.
43. Öztürk MK. Skin diseases in rural Nyala, Sudan (in a rural hospital, in 12 orphanages, and in two refugee camps). *Int J Dermatol*. 2019;58(11):1341–9. doi:10.1111/ijd.14619.
44. Quandt SA, Brooke C, Fagan K, Howe A, Thornburg TK, McCurdy SA. Farmworker housing in the United States and its impact on health. *New Solut*. 2015;25(3):263–86. doi:10.1177/1048291115601053.
45. BADEHOG. In: Onceavo taller regional metodologías para la integración de bases de datos de encuestas de hogares [Eleventh regional workshop on methodologies for the integration of household survey databases], Lima, Perú, 16–18 July 2003. Santiago: United Nations Economic Commission for Latin America and the Caribbean; 2021:295–300 (<https://repositorio.cepal.org/handle/11362/31828>, accessed 17 November 2021).
46. Tangcharoensathien V, Thwin AA, Patcharanarumol W. Implementing health insurance for migrants, Thailand. *Bull World Health Organ*. 2017;95(2):146–51. doi:10.2471/BLT.16.179606.
47. C143: migrant workers (supplementary provisions) convention, 1975 (No. 143). Geneva: International Labour Organization; 1975 (https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/ILO_C_143.pdf, accessed 3 January 2022).
48. Comparison of health care coverage for workers in the GCC: draft. Gulf Cooperation Council countries. Migrant-rights.org; 2020 (<https://www.migrant-rights.org/wp-content/uploads/2020/03/Comparison-Of-Health-Care-Coverage-For-Migrant-Workers-In-The-GCC-.pdf>, accessed 24 January 2022).
49. Medical insurance requirements for migrant worker. In: Ministry of Manpower, Singapore [website]. Singapore: Ministry of Manpower; 2021 (<https://www.mom.gov.sg/passes-and-permits/work-permit-for-foreign-worker/sector-specific-rules/medical-insurance>, accessed 24 January 2022).
50. Kunpeuk W, Teekasap P, Kosiyaporn H, Julchoo S, Phaiyaron M, Sinam P. Understanding the problem of access to public health insurance schemes among cross-border migrants in Thailand through systems thinking. *Int J Env Res Public Health*. 2020;17(14):5113. doi:10.3390/ijerph17145113.
51. Suphanchaimat R, Putthasri W, Prakongsai P, Tangcharoensathien V. Evolution and complexity of government policies to protect the health of undocumented/illegal migrants in Thailand: the unsolved challenges. *Risk Manag Healthc Policy*. 2017;10:49–62. doi:10.2147/RMHP.S130442.
52. Legido-Quigley H, Chuah FLH, Howard N. Southeast Asian health system challenges and responses to the "Andaman Sea refugee crisis": a qualitative study of health-sector perspectives from Indonesia, Malaysia, Myanmar, and Thailand. *PLOS Med*. 2020;17(11):e1003143. doi:10.1371/journal.pmed.1003143.
53. Nepal R, Bhattarai B. The grim reality of health system uncovered with COVID-19 pandemic in Nepal. *J Nepal Health Res Counc*. 2020;18(3):569–71. doi:10.33314/jnhrc.v18i3.2755.
54. Status of Nepali migrant workers in relation to COVID-19. Geneva: International Organization for Migration; 2020 (<https://publications.iom.int/system/files/pdf/rapid-phone-survey.pdf>, accessed 22 January 2022).
55. Shadmi E, Chen Y, Dourado I, Faran-Perach I, Furler J, Hangoma P et al. Health equity and COVID-19: global perspectives. *Int J Equity Health*. 2020;19(1):104. doi:10.1186/s12939-020-01218-z.
56. Bojorquez-Chapela I, Flórez-García V, Calderón-Villarreal A, Fernández-Niño JA. Health policies for international migrants: a comparison between Mexico and Colombia. *Health Policy OPEN*. 2020;1:100003. doi:10.1016/j.hpopen.2020.100003.
57. Concha NPL, Mansilla MA. Pacientes ilegítimos: acceso a la salud de los inmigrantes indocumentados en Chile [Illegitimate patients: undocumented migrants' access to health care in Chile]. *Salud Colect*. 2017;13(3):507–20 (in Spanish). doi:10.18294/sc.2017.1110.

58. Santacruz JSR, Georg RR, Cubillos AF, Valverde JR, Wiesner MLR, Rodríguez AYR. Realidades migratorias actuales: una mirada frente a la recepción de la población de venezolanos en el contexto colombiano y sus efectos en la salud [Current migratory realities: a look at the reception of the Venezuelan population in the Colombian context and its health effects]. In: Pardo F, editor. *América Latina en las dinámicas de la migración internacional: perspectivas críticas* [Latin America in the dynamics of international migration: critical perspectives]. Santiago: Universidad del Externado; 2019:273–300 (in Spanish).
59. Ortega CF, Valderrama CG, Melis RP. Políticas públicas y salud en materia de inmigración: puntos críticos en la accesibilidad del sistema público chileno [Public policies and health in terms of immigration: critical points in the accessibility of the Chilean public health system]. *Acciones Investig Soc*. 2017;(37):61–93 (in Spanish; <https://dialnet.unirioja.es/servlet/articulo?codigo=6135546>, accessed 23 June 2022).
60. Rodríguez Vargas JM, López Jaramillo AM. La afiliación al sistema de salud de personas migrantes venezolanas en Colombia [The integration of Venezuelan migrants in Colombia to the health-care system]. *Poblaç Salud Mesoam*. 2021;18(2):181–214 (in Spanish). doi:10.15517/psm.v18i2.42795.
61. Cabieses B, Oyarte M. Health access to immigrants: identifying gaps for social protection in health. *Rev Saude Publica*. 2020;54:20. doi:10.11606/S1518-8787.2020054001501.
62. Voorend K, Bedi AS, Sura-Fonseca R. Migrants and access to health care in Costa Rica. *World Dev*. 2021;144:105481. doi:10.1016/j.worlddev.2021.105481.
63. Brownwright TK, Dodson ZM, van Panhuis WG. Spatial clustering of measles vaccination coverage among children in sub-Saharan Africa. *BMC Public Health*. 2017;17(1):957. doi:10.1186/s12889-017-4961-9.
64. Aragón E, El-Assar A. Migration governance in the Caribbean: report on the island states of the Commonwealth Caribbean. San José: International Organization for Migration Regional Office for Central America, North America and the Caribbean; 2018 (https://caribbeanmigration.org/sites/default/files/repository/regional_report_on_migration_governance_in_the_island_states_of_the_commonwealth_caribbean.pdf, accessed 19 January 2022).
65. Charania NA, Paynter J, Lee AC, Watson DG, Turner NM. Exploring immunisation inequities among migrant and refugee children in New Zealand. *Hum Vaccin Immunother*. 2018;14(12):3026–33. doi:10.1080/21645515.2018.1496769.
66. De Vito E, Parente P, De Waure C, Poscia A, Ricciardi W. WA review of evidence on equitable delivery, access and utilization of immunization services for migrants and refugees in the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2017 (<https://apps.who.int/iris/handle/10665/326288>, accessed 19 January 2022).
67. Robertson T, Weiss W, Doocy S, Jordan Health Access Study Team, Lebanon Health Access Study Team. Challenges in estimating vaccine coverage in refugee and displaced populations: results from household surveys in Jordan and Lebanon. *Vaccines*. 2017;5(3):22. doi:10.3390/vaccines5030022.
68. Harvey B, Dalal W, Amin F, McIntyre E, Ward S, Merrill RD et al. Planning and implementing a targeted polio vaccination campaign for Somali mobile populations in northeastern Kenya based on migration and settlement patterns. *Ethn Health*. 2020;2020:1–16. doi:10.1080/13557858.2020.1838455.
69. Kaji A, Parker DM, Chu CS, Thayatkawin W, Suelaor J, Charatruangrongkun R et al. Immunization coverage in migrant school children along the Thailand–Myanmar border. *J Immigr Minor Health*. 2016;18(5):1038–45. doi:10.1007/s10903-015-0294-x.
70. González Morales F. One and a half years after: the impact of COVID-19 on the human rights of migrants. New York: United Nations; 2021 (A/76/257; <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N21/212/04/PDF/N2121204.pdf?OpenElement>, accessed 19 January 2022).
71. Ellawela Y, Nilaweera I, Holton S, Rowe H, Kirkman M, Jordan L et al. Contraceptive use and contraceptive health care needs among Sri Lankan migrants living in Australia: findings from the Understanding fertility management in contemporary Australia survey. *Sex Reprod Healthc*. 2017;12:70–5. doi:10.1016/j.srhc.2017.03.003.
72. Ganle JK, Amoako D, Baatiema L, Ibrahim M. Risky sexual behaviour and contraceptive use in contexts of displacement: insights from a cross-sectional survey of female adolescent refugees in Ghana. *Int J Equity Health*. 2019;18(1):127. doi:10.1186/s12939-019-1031-1.
73. Tapales A, Douglas-Hall A, Whitehead H. The sexual and reproductive health of foreign-born women in the United States. *Contraception*. 2018;98(1):47–51. doi:10.1016/j.contraception.2018.02.003.
74. Bahamondes L, Laporte M, Margatho D, de Amorim HSF, Brasil C, Charles CM et al. Maternal health among Venezuelan women migrants at the border of Brazil. *BMC Public Health*. 2020;20(1):1771. doi:10.1186/s12889-020-09912-x.
75. Davidson AS, Fabiyi C, Demissie S, Getachew H, Gilliam ML. Is LARC for everyone? A qualitative study of sociocultural perceptions of family planning and contraception among refugees in Ethiopia. *Matern Child Health J*. 2017;21(9):1699–705. doi:10.1007/s10995-016-2018-9.
76. Salisbury P, Hall L, Kulkus S, Paw MK, Tun NW, Min AM et al. Family planning knowledge, attitudes and practices in refugee and migrant pregnant and post-partum women on the Thailand–Myanmar border: a mixed methods study. *Reprod Health*. 2016;13(1):94. doi:10.1186/s12978-016-0212-2.

77. Shah R, Kiriya J, Shibamura A, Jimba M. Use of modern contraceptive methods and its association with QOL among Nepalese female migrants living in Japan. *PLOS One*. 2018;13(5):e0197243. doi:10.1371/journal.pone.0197243.
78. Tran TDH, Tuan DK, Anh ND, Le TKA, Bui TTH. Premarital sex, contraceptive use among unmarried women migrant workers in industrial parks in Vietnam, 2015. *Health Care Women Int*. 2018;39(4):377–88. doi:10.1080/07399332.2017.1412439.
79. Inoue K, Kelly M, Bateson D, Rutherford A, Stewart M, Richters J. Contraceptive choices and sexual health of Japanese women living in Australia: a brief report from a qualitative study. *Aust Fam Physician*. 2016;45(7):523–7. PMID:27610438.
80. Dolan H, Li M, Bateson D, Thompson R, Tam CWM, Bonner C et al. "Every medicine is part poison": a qualitative inquiry into the perceptions and experiences of choosing contraceptive methods of migrant Chinese women living in Australia. *BMC Womens Health*. 2021;21(1):100. doi:10.1186/s12905-021-01226-3.
81. Inci MG, Kutschke N, Nasser S, Alavi S, Abels I, Kurmeyer C. Unmet family planning needs among female refugees and asylum seekers in Germany: is free access to family planning services enough? Results of a cross-sectional study. *Reprod Health*. 2020;17(1):115. doi:10.1186/s12978-020-00962-3.
82. Mamuk R, Şahin NH. Reproductive health issues of undocumented migrant women living in Istanbul. *Eur J Contracept Reprod Health Care*. 2021;26(3):202–8. doi:10.1080/13625187.2020.1843618.
83. Schmidt NC, Fagnoli V, Epiney M, Irion O. Barriers to reproductive health care for migrant women in Geneva: a qualitative study. *Reprod Health*. 2018;15(1):43. doi:10.1186/s12978-018-0478-7.
84. Children in the state of Palestine: child development data from the 2019/2020 multiple indicator cluster survey (MICS). New York: United Nations Children's Fund; 2021 (<https://www.unicef.org/sop/media/1681/file/Children%20in%20the%20State%20of%20Palestine.pdf>, accessed 4 February 2022).
85. Steinbrook E, Min MC, Kajeewiwa L, Wiladphaingern J, Paw MK, Pimanpanarak MPJ et al. Distance matters: barriers to antenatal care and safe childbirth in a migrant population on the Thailand–Myanmar border from 2007 to 2015, a pregnancy cohort study. *BMC Pregnancy Childbirth*. 2021;21:802. doi:10.1186/s12884-021-04276-5.
86. Khosla R, Banerjee J, Chou D, Say L, Fried ST. Gender equality and human rights approaches to female genital mutilation: a review of international human rights norms and standards. *Reprod Health*. 2017;14(1):59. doi:10.1186/s12978-017-0322-5.
87. Agu J, Lobo R, Crawford G, Chigwada B. Migrant sexual health help-seeking and experiences of stigmatization and discrimination in Perth, Western Australia: exploring barriers and enablers. *Int J Environ Res Public Health*. 2016;13(5):485. doi:10.3390/ijerph13050485.
88. Alradie-Mohamed A, Kabir R, Arafat SMY. Decision-making process in female genital mutilation: a systematic review. *Int J Environ Res Public Health*. 2020;17(10):3362. doi:10.3390/ijerph17103362.
89. Rouzi AA, Berg RC, Alamoudi R, Alzaban F, Sehlo M. Survey on female genital mutilation/cutting in Jeddah, Saudi Arabia. *BMJ Open*. 2019;9(5):e024684. doi:10.1136/bmjopen-2018-024684.
90. Wahlberg A, Johnsdotter S, Selling KE, Källestål C, Essén B. Baseline data from a planned RCT on attitudes to female genital cutting after migration: when are interventions justified? *BMJ Open*. 2017;7(8):e017506. doi:10.1136/bmjopen-2017-017506.
91. Johansen REB. Virility, pleasure and female genital mutilation/cutting. A qualitative study of perceptions and experiences of medicalized defibulation among Somali and Sudanese migrants in Norway. *Reprod Health*. 2017;14(1):25. doi:10.1186/s12978-017-0287-4.
92. De Schrijver L, Van Baelen L, Van Eekert N, Leye E. Towards a better estimation of prevalence of female genital mutilation in the European Union: a situation analysis. *Reprod Health*. 2020;17:105. doi:10.1186/s12978-020-00947-2.
93. Progress on the Sustainable Development Goals: the gender snapshot 2021. New York: UN Women; 2021 (<https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2021/Progress-on-the-Sustainable-Development-Goals-The-gender-snapshot-2021-en.pdf>, accessed 26 December 2021).
94. Feters T, Rubayet S, Sultana S, Nahar S, Tofigh S, Jones L et al. Navigating the crisis landscape: engaging the Ministry of Health and United Nations agencies to make abortion care available to Rohingya refugees. *Confl Health*. 2020;14(1):50. doi:10.1186/s13031-020-00298-6.
95. Reques L, Aranda-Fernandez E, Rolland C, Grippon A, Fallet N, Reboul C. Episodes of violence suffered by migrants transiting through Libya: a cross-sectional study in "Médecins du Monde's" reception and healthcare centre in Seine-Saint-Denis, France. *Confl Health*. 2020;14:12. doi:10.1186/s13031-020-0256-3.
96. Parrado EA, Flippen CA, McQuiston C. Migration and relationship power among Mexican women. *Demography*. 2005;42(2):347–72. doi:10.1353/dem.2005.0016.
97. Quang LT. Asia-Pacific generation equality dialogue: gender-based violence. In: UN Women, generation equality forum [website]. New York: UN Women; 2021 (<https://asiapacific.unwomen.org/en/get-involved/beijing-plus-25/generation-equality-forum-ap-regional-journey>, accessed 19 January 2022).
98. Al-Modallal H. Effect of intimate partner violence on health of women of Palestinian origin. *Int Nurs Rev*. 2016;63(2):259–66. doi:10.1111/inr.12239.

99. Delkhosh M, Merghati Khoei E, Ardalan A, Rahimi Foroushani A, Gharavi MB. Prevalence of intimate partner violence and reproductive health outcomes among Afghan refugee women in Iran. *Health Care Women Int.* 2019;40(2):213–37. doi:10.1080/07399332.2018.1529766.
100. Hirsch JS, Muñoz-Laboy M, Nyhus CM, Yount KM, Bauermeister JA. They "miss more than anything their normal life back home": masculinity and extramarital sex among Mexican migrants in Atlanta. *Perspect Sex Reprod Health.* 2009;41(1):23–32. doi:10.1111/j.1931-2393.2009.4112309.x.
101. Croft TN, Marshall AMJ, Allen CK. Guide to DHS statistics. Rockville (MD): ICF; 2018 (https://www.dhsprogram.com/pubs/pdf/DHSG1/Guide_to_DHS_Statistics_DHS-7.pdf, accessed 18 May 2022).
102. Henkelmann J-R, de Best S, Deckers C, Jensen K, Shahab M, Elzinga B et al. Anxiety, depression and post-traumatic stress disorder in refugees resettling in high-income countries: systematic review and meta-analysis. *BJPsych Open.* 2020;6(4):e68. doi:10.1192/bjo.2020.54.
103. Kessler RC, Aguilar-Gaxiola S, Alonso J, Benjet C, Bromet EJ, Cardoso G et al. Trauma and PTSD in the WHO World Mental Health Surveys. *Eur J Psychotraumatol.* 2017;8(suppl 5):1353383. doi:10.1080/20008198.2017.1353383.
104. Tarricone I, D'Andrea G, Jongsma HE, Tosato S, Gayer-Anderson C, Stilo SA et al. Migration history and risk of psychosis: results from the multinational EU–GEI study. *Psychol Med.* 2021;2021:1–13. doi:10.1017/S003329172000495X.
105. Malmusi D. Immigrants' health and health inequality by type of integration policies in European countries. *Eur J Public Health.* 2015;25(2):293–9. doi:10.1093/eurpub/cku156.
106. Ikram UZ, Malmusi D, Juel K, Rey G, Kunst AE. Association between integration policies and immigrants' mortality: an explorative study across three European countries. *PLOS One.* 2015;10(6):e0129916. doi:10.1371/journal.pone.0129916.
107. Malmusi D, Palència L, Ikram UZ, Kunst AE, Borrell C. Inequalities by immigrant status in depressive symptoms in Europe: the role of integration policy regimes. *Soc Psychiatry Psychiatr Epidemiol.* 2017;52(4):391–8. doi:10.1007/s00127-017-1348-2.
108. Juárez SP, Honkaniemi H, Dunlavy AC, Aldridge RW, Barreto ML, Katikireddi SV et al. Effects of non-health-targeted policies on migrant health: a systematic review and meta-analysis. *Lancet Glob Health.* 2019;7(4):e420–35. doi:10.1016/S2214-109X(18)30560-6.
109. Borrell C, Palència L, Bartoll X, Ikram U, Malmusi D. Perceived discrimination and health among immigrants in Europe according to national integration policies. *Int J Env Res Public Health.* 2015;12(9):10687–99. doi:10.3390/ijerph120910687.
110. Habib Rima R, El-Harakeh A, Ziadee M, Abi Younes E, El Asmar K. Social capital, social cohesion, and health of Syrian refugee working children living in informal tented settlements in Lebanon: a cross-sectional study. *PLOS Med.* 2020;17(9):e1003283. doi:10.1371/journal.pmed.1003283.
111. Alemi Q, Stempel C. Discrimination and distress among Afghan refugees in northern California: the moderating role of pre- and post-migration factors. *PLOS One.* 2018;13(5):e0196822. doi:10.1371/journal.pone.0196822.
112. Kim B, Son K-B. Factors affecting the self-rated health of immigrant women married to native men and raising children in South Korea: a cross-sectional study. *BMC Womens Health.* 2020;20(1):210. doi:10.1186/s12905-020-01073-8.
113. Cavazzoni F, Fiorini A, Shoman H, Diab M, Veronese G. The role of gender and living context in shaping Palestinian children's agency and well-being. *Gend Place Cult.* 2021;29(2):222–47. doi:10.1080/0966369X.2021.1882954.
114. Alduraidi H, Saleh Z, Hamdan-Mansour A. Socio-demographic predictors of perceived health among Syrian refugees in Jordan. *Med Leg Update.* 2021;21(1):287–91. doi:10.37506/mlu.v21i1.2322.
115. Ng E, Zhang H. The mental health of immigrants and refugees: Canadian evidence from a nationally linked database. *Health Rep.* 2020;31(8):3–12. doi:10.25318/82-003-x202000800001-eng.
116. Hoell A, Kourmpeli E, Salize HJ, Heinz A, Padberg F, Habel U et al. Prevalence of depressive symptoms and symptoms of post-traumatic stress disorder among newly arrived refugees and asylum seekers in Germany: systematic review and meta-analysis. *BJPsych Open.* 2021;7(3):e93. doi:10.1192/bjo.2021.54.
117. Blackmore R, Boyle JA, Fazel M, Ranasinha S, Gray KM, Fitzgerald G et al. The prevalence of mental illness in refugees and asylum seekers: a systematic review and meta-analysis. *PLOS Med.* 2020;17(9):e1003337. doi:10.1371/journal.pmed.1003337.
118. Priebe S, Giacco D, El-Nagib R. Public health aspects of mental health among migrants and refugees: a review of the evidence on mental health care for refugees, asylum seekers, and irregular migrants in the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2016 (<https://apps.who.int/iris/handle/10665/326308>, accessed 19 January 2022).
119. Heeke C, O'Donald A, Stammel N, Böttche M. Same same but different? DSM-5 versus ICD-11 PTSD among traumatized refugees in Germany. *J Psychosom Res.* 2020;134:110129. doi:10.1016/j.jpsychores.2020.110129.
120. Sacchetti E, Garozzo A, Mussoni C, Liotta D, Novelli G, Tamussi E et al. Post-traumatic stress disorder and subthreshold post-traumatic stress disorder in recent male asylum seekers: an expected but overlooked "European" epidemic. *Stress Health.* 2020;36(1):37–50. doi:10.1002/smi.2910.

121. Barbieri A, Visco-Comandini F, Alunni Fegatelli D, Schepisi C, Russo V, Calò F et al. Complex trauma, PTSD and complex PTSD in African refugees. *Eur J Psychotraumatol*. 2019;10(1):1700621. doi:10.1080/20008198.2019.1700621.
122. Makowski AC, von dem Knesebeck O. Depression stigma and migration: results of a survey from Germany. *BMC Psychiatry*. 2017;17(1):381. doi:10.1186/s12888-017-1549-y.
123. Bilal PI, Chan CKY, Somerset SM. Depression mediates association between perceived ethnic discrimination and elevated blood glucose levels among sub-Saharan African migrants in Australia. *J Immigr Minor Health*. 2021;23(2):199–206. doi:10.1007/s10903-020-01131-1.
124. Mougnot B, Amaya E, Mezones-Holguin E, Rodriguez-Morales AJ, Cabieses B. Immigration, perceived discrimination and mental health: evidence from Venezuelan population living in Peru. *Glob Health*. 2021;17(1):8. doi:10.1186/s12992-020-00655-3.
125. Carey RN, El-Zaemey S, Daly A, Fritschi L, Glass DC, Reid A. Are there ethnic disparities in exposure to workplace hazards among New Zealand migrants to Australia? *Asia Pac J Public Health*. 2021;33(8):870–9. doi:10.1177/10105395211007648.
126. Gosselin A, Daly A, El Zaemey S, Fritschi L, Glass D, Perez ER et al. Does exposure to workplace hazards cluster by occupational or sociodemographic characteristics? An analysis of foreign-born workers in Australia. *Am J Ind Med*. 2020;63(9):803–16. doi:10.1002/ajim.23146.
127. Thela L, Tomita A, Maharaj V, Mhlongo M, Burns JK. Counting the cost of Afrophobia: post-migration adaptation and mental health challenges of African refugees in South Africa. *Transcult Psychiatry*. 2017;54(5–6):715–32. doi:10.1177/1363461517745472.
128. Di Napoli A, Rossi A, Baralla F, Ventura M, Gatta R, Perez M et al. Self-perceived workplace discrimination and mental health among immigrant workers in Italy: a cross-sectional study. *BMC Psychiatry*. 2021;21(1):85. doi:10.1186/s12888-021-03077-6.
129. Chiumento A, Rutayisire T, Sarabwe E, Hasan MT, Kasujja R, Nabirinde R et al. Exploring the mental health and psychosocial problems of Congolese refugees living in refugee settings in Rwanda and Uganda: a rapid qualitative study. *Confl Health*. 2020;14(1):77. doi:10.1186/s13031-020-00323-8.
130. Rivenbark JG, Ichou M. Discrimination in healthcare as a barrier to care: experiences of socially disadvantaged populations in France from a nationally representative survey. *BMC Public Health*. 2020;20(1):31. doi:10.1186/s12889-019-8124-z.
131. Radi S. Hospital interactions in Morocco: access to health care policies from a patient perspective. *Mondes Dev*. 2019;187(3):71–84. doi:10.3917/med.187.0071.
132. MICS surveys [online database]. New York: United Nations Children's Fund; 2022 (<https://mics.unicef.org/surveys>, accessed 18 May 2022).
133. Michalopoulos LM, Ncube N, Simona SJ, Kansankala B, Sinkala E, Raidoo J. A qualitative study of migrant-related stressors, psychosocial outcomes and HIV risk behaviour among truck drivers in Zambia. *Afr J AIDS Res*. 2016;15(3):219–26. doi:10.2989/16085906.2016.1179653.
134. Thuita W, Conn C, Wilson K. The role of marginalised women in sanitation initiatives: Somali women in northern Kenya. *Dev Pract*. 2017;27(1):16–25. doi:10.1080/09614524.2017.1256951.



I have had the opportunity to be – to a certain extent – in the shoes of the millions of displaced people globally, and have the challenge and privilege to voice their experiences.

The physical, economic and psychological challenges posed by migration and displacement, and integration in host communities, are often misheard, overlooked or misperceived.

I welcome how this report assembles available global evidence on the health of people on the move – international migrants and those forcibly displaced – in a single authoritative document. I am grateful for how it shines a light on the health risks, challenges, barriers and needs these populations face every day in every corner of the world. I urge planners, policy-makers and donors alike to use the wealth of information found in this report to inform decision-making. I would also like to invite them to consider the action points for governments and other stakeholders around the world to step up efforts and make good health and well-being a reality for all members of society, of which refugees and migrants are – and should be considered by everyone, everywhere at any time – an integral part. Concrete steps towards protecting and promoting the health of refugees and migrants are steps closer to our health.

Abdulrazak Gurnah

Novelist and Professor, Nobel Prize in Literature (2021) for his uncompromising and compassionate penetration of the effects of colonialism and the fates of the refugee in the gulf between cultures and continents

CHAPTER 6

Health and migration: the way forward



A mother and her baby waiting to receive her two bags of cattle feed. Following a major drought in 2017 in Mauritania, people in the Hodh El Chargui region are receiving humanitarian assistance. © IOM / Sibylle Desjardins

6.1 The current state of affairs

This report brings together evidence that is as comprehensive as possible concerning a multitude of health challenges faced by hundreds of millions of refugees and migrants. It highlights key global gaps in data quality and knowledge and the need for development of robust evidence-informed policies, programmes and plans for implementation. The report also presents good practices and case studies on current and possible collective responses that can be taken by governments and other global stakeholders, together with refugees and migrants, to ensure effective, multisectoral research, policy and action. By presenting the current global data and evidence on health and migration, this report outlines both current and future opportunities and challenges.

Every effort was made to collect together all the evidence to show trends and good practices, as well as to derive an evidence-informed way forward. However, comparable data and evidence across countries and over time have been challenging to collect, and this has made it difficult to produce clear and concise health messages as seen in the preceding chapters. Having said this, the evidence does show that improving the access of refugees and migrants to preventive and curative health care, health promotion services and health



A Syrian refugee at a health facility in Türkiye. Syrian health professionals have been trained so that they can be integrated into the Turkish health system to help meet the needs of refugee communities in the country. © WHO / Burak Ercan

This report highlights key global gaps in data quality and knowledge and the need for the development of robust evidence-informed policies, programmes and plans for implementation.

systems is essential to addressing global inequalities in health and achieving, among other global health goals, the health-related SDGs by 2030. Equitable access to health care for refugees and migrants is also key to addressing broader structural and social determinants of health, which in turn strengthens the health of communities more broadly. Furthermore, the report shows that,

in order to reach these objectives, policy and practice must be rooted in the principles of health equity and the right to health, and must ensure UHC.

It is, therefore, necessary to ensure that refugees and migrants are included in and empowered by participatory governance; identifiable in the data; prioritized in research; and included in health and social protection schemes and health systems worldwide. The report also emphasizes the need to centre health within migration policies as much as centring migration within health policies.

6.1.1 Population movement and health: an overview

The number of migrants worldwide has been steadily increasing, from 153 million in 1990, to 173 million in 2000 and to 281 million in 2020. The growth rate rose from 2.3% over 5 years (2010–2015) to 2.5% over the following 5 years (2015–2020). In 2022 UNHCR reported a staggering milestone: for the first time on



A Ukrainian refugee covers her son with a blanket at a reception centre in Poland. © WHO / Kasia Strek

record, as a result of the war in Ukraine and other conflicts, the number of people forcibly displaced globally rose above a staggering 100 million (1). This number continues to increase. Across the WHO regions, the WHO European Region hosts the highest number of migrants: approximately 101 million people, while the WHO Eastern Mediterranean Region hosts the highest number of refugees and asylum seekers, with approximately 9.6 million.

As well as affecting the health of refugees and migrants themselves, displacement and migration also affect populations in countries along the migratory pathway. Increased population movement has profound impacts on health systems in all countries affected by migration, for both migrant and host populations. Addressing the health needs related to moving populations is also integral to public health principles, including the right to health for all.

6.1.2 Determinants of refugee and migrant health

Health outcomes cannot be understood, much less improved, without knowledge of the underlying contexts, conditions and enabling factors that shape them. Addressing these determinants will often be more effective and less expensive than providing treatment and health services when people are already ill. This report demonstrates the importance of examining the determinants that affect health outcomes of refugees and migrants at each stage of their displacement and migration, as well as considering the health of host populations.

Refugees and migrants are affected by the same determinants of health as everyone else. However, a key finding in Chapter 2 is that migratory status adds a layer of complexity and intensity to the interactions between other determinants of health and this is relevant across all the WHO regions. Their migratory

history can make refugees and migrants more vulnerable or marginalized, or both, and affects all aspects of their health.

Only through understanding and addressing the underlying determinants of health for refugees and migrants can their health be ensured. For example, the core health care needs of a migrant woman seeking ANC to ensure that she and her fetus are healthy might be similar to those of a woman from the host population who is also seeking ANC. However, the migrant woman may have faced different experiences and be less comfortable with and knowledgeable about accessing health care in the host country: not just in terms of language and culture but also other aspects, such as health insurance and social care.

Another example is the higher levels of occupational health hazards faced by low-skilled migrant workers compared with their counterparts from the host population. This higher risk may be attributed to a lack of occupational insurance coverage for migrant workers who are in the so-called 3D jobs (dirty, dangerous and demanding, and sometimes degrading or demeaning) such as construction and mining. Migrant workers may also be more vulnerable to exploitation by employers due to factors such as their visa status or other rules and regulations.

Only through understanding and addressing the underlying determinants of health for refugees and migrants can their health be ensured.

Migratory status is, therefore, both an important determinant of health and a determinant of access to health services and to the social protections that contribute to health outcomes. This strongly supports the conclusion that greater inclusivity – that is, ensuring equitable and appropriate health services for all refugees and migrants, rather than only for those of a certain category – pays dividends in health outcomes for all. While addressing health outcomes is vital, it is even more important to address the underlying determinants that create or exacerbate poor health outcomes. The fact that many of these determinants are not within the direct influence of the health sector suggests a practical course of action: health ministries must take the lead in promoting whole-of-government and whole-of-society approaches to ensure the health of refugees and migrants both nationally and across borders.

6.1.3 Health status of refugees and migrants

It is clear that, around the world, refugees and certain groups of migrants (such as international low-skilled migrant workers) face poorer health outcomes than the host

population if the conditions they live and work in are not conducive to good health. Without sufficient comparable evidence, this report cannot draw global or even regional conclusions about health care access or the health status of refugees and migrants or for any specific subgroups. This reflects the highly heterogeneous nature of refugee and migrant populations. Threats, risks and vulnerabilities often differ between regions and among groups. This report emphasizes that diseases must be dealt with through a migration perspective – at points of origin, transit and arrival and throughout the migratory cycle – and be tailored to the specific target group. For example, although common barriers such as language might exist among irregular migrants and labour migrants, access to health care and social protection differs between these groups. If addressed in a timely manner, diseases can be prevented or treated so they do not become a burden for refugees and migrants or for their host population, thus strengthening the capacity of refugees and migrants to make active contributions to their countries of origin and destination.

Refugees and migrants also tend to experience poorer access to MCH services than women in their host country; this includes ANC coverage. Access is hampered by barriers such as out-of-pocket costs, poor awareness of health services, a low level of education and cultural beliefs. This indicates the need for interventions that target the various determinants rather than interventions that target the provision of health services alone. Across regions, the SRH needs of some refugee and migrant groups are not being met, such as the need for contraception and other family planning care, due to a lack of awareness of such services and culturally competent provision of services.

Refugees and migrants are at particularly high risk for NCDs, such as diabetes, CVDs and

Refugees and migrants often experience poor living and working conditions during departure, transit or on arrival in host countries and, therefore, face additional barriers to receiving timely diagnosis, treatment and care, which might increase the prevalence of diseases among them.

hypertension, some of which are significant causes of premature mortality, particularly where barriers exist to accessing health care. Cancer, for example, is often diagnosed at a late stage for many refugees and migrants, and diabetes and hypertension often go undiagnosed and uncontrolled until they reach a critical stage. However, poorer health outcomes for refugees and migrants are not universal; research has revealed deviations from this rule in some regions and for some conditions. For example, while migrant schoolchildren in some countries were at lower risk for overweight/obesity than children from the host population, the opposite was true in other countries. There also were variations among migrant groups. One such example was the higher prevalence of CVD risk factors among migrants who arrived as children compared with migrants who arrived during adulthood. Another example is the higher prevalence of diabetes among refugees and migrants in the WHO European Region compared with host populations, with refugees and migrants from South-East Asia having the highest risk, and women having a higher prevalence than men or women in their country of origin.

One of the main factors associated with the higher prevalence of NCDs and their risk factors is the limited awareness among refugees and migrants of prevention and control mechanisms for these conditions. In addition to making health care services available for refugees and migrants, it is important to improve their awareness of diseases, availability of prevention and treatment services, and their entitlements in accessing health services.

Although refugees and migrants may experience a wide range of mental health conditions, these vary depending on social and environmental factors, such as the absence

of family or social support, discrimination, age, ethnicity and length of time spent in the host country. There is clear evidence that some specific populations who have experienced conflict and war, such as younger migrants and adolescents, are affected by poor mental health more than others. Groups such as refugees and UASC tend to show a higher prevalence of depression; however, its occurrence is strongly dependent on their living conditions and the trauma experienced during their displacement. While health care services to address poor mental health should be put in place, the determinants that affect the living and working conditions of refugees and migrants also need to be considered when developing interventions to ensure that these challenges are addressed holistically.

No evidence suggests that being a refugee or migrant is more strongly associated with common infectious diseases. However, refugees and migrants often experience living and working conditions during departure, transit or on arrival in host countries and, therefore, face additional barriers to receiving timely diagnosis, treatment and care, which might increase the prevalence of diseases among them. For example, while there is evidence that refugees and migrants represent a large proportion of people living with HIV/AIDS in some countries with a low prevalence among the host population, studies show that a significant proportion acquired their infection after arriving in the host country. This highlights a missed opportunity for the health system to prevent further spread of the disease.

Stigma and discrimination experienced by refugees and migrants during interactions with the health care system may hamper their access to health services, including diagnostic services related to TB, HIV or hepatitis and SRH services. TB provides an example: in high-income settings where TB

prevalence is low, refugees and migrants account for a higher proportion of TB cases. Poor living conditions and poverty are linked to increases in TB cases in general, and many refugee and migrant communities often live in overcrowded and poorly ventilated living quarters, which increases their vulnerability to TB. Additionally, the process of migration can make access and adherence to TB treatment more difficult, and can contribute to the development of drug-resistant TB. In some high-income contexts, drug-resistant TB is an emerging concern among refugee and migrant populations. This points to the need for continuity of care throughout the migratory pathway and after refugees and migrants reach their destination. Poor living and working conditions also need to be addressed to prevent new infections and to facilitate access to treatment if needed. It is worthwhile to note that the report found no evidence of TB spreading from refugees and migrants to host populations.

Low-skilled migrant workers are highlighted as a priority population as they suffer greater occupational health risks, including injury and death, than workers in their host country. Low-skilled migrant workers are less likely to use health care services for a variety of reasons. Male migrant workers tend to be in sectors with a high risk of physical injury and, as a result, tend to have higher rates of workplace injury. In some contexts, the prevalence of having at least one occupational injury was almost 50% among migrants from low- and middle-income countries (see Chapter 3). Policy-makers and those who implement policies must urgently consider creating or expanding occupational health and safety standards and providing work-related insurance that covers all working men and women, including low-wage migrant workers. Finally, refugees and migrants have been disproportionately affected by the COVID-19

pandemic, which increased their burden of disease, reduced their income, affected their social and mental well-being and reduced their mobility through travel restrictions. Some of the major reasons for the increased burden were crowded living conditions, jobs that required direct contact with others and a lack of inclusion of refugees and migrants in public health interventions such as testing and vaccination, particularly during the initial stage of the pandemic.

While the direct impact was the increased burden of disease, the indirect impacts included loss of jobs and income, and inability to travel due to border closures. Women and girls were severely impacted and were more vulnerable to child marriage and human trafficking due to school closures, job and income losses, and increased livelihood insecurity. In some countries many girls are not expected to return to schools after they reopen.

Several countries introduced policies such as ensuring free access to COVID-19 testing and vaccination regardless of legal status for refugees and migrants, or releasing migrants from immigration detention centres, which helped to ease the burden of the pandemic on refugee and migrant communities. The COVID-19 pandemic has once again shown that the health of refugees and migrants and their host communities cannot be protected and promoted if refugees and migrants are not included in national public health strategies, including preparedness and response.

6.1.4 Gaps and good practices in health systems

The evidence indicates that particular groups of refugees and migrants are being left behind. Some are left behind intentionally, for example when their access to health care is restricted as a result of their migratory status. Others are left behind inadvertently, for example when health



Migrant workers learn about COVID-19 prevention measures at a workshop held by the NGO Migrant Workers' Centre at a dormitory in Singapore. © WHO / Juliana Tan

care staff or other service providers are not adequately trained to ensure the equal and equitable provision of health care to refugees and migrants. Regardless of the reason, access to health systems and equitable health care is often compromised for refugees and migrants, with additional barriers including legal obstacles, discrimination, administrative and financial hurdles, lack of information about health entitlements, low health literacy, language and cultural barriers, and fear of detention and deportation.

Using WHO's six building blocks of health systems as a frame, the evidence indicates that ensuring health systems and health care workers are sensitive to and knowledgeable about the health needs of refugees and migrants is feasible and cost-effective. It is also a key element in strengthening health systems, benefiting host populations as well as refugees

and migrants. Despite a lack of incentives to include refugees and migrants in health programmes in many governments, evidence shows that the cost of excluding them may ultimately be higher than the cost of ensuring their inclusion. At the same time, some subgroups of refugees and migrants require small, targeted interventions in sectors such as MCH, and these could yield significant results.

This report shows that refugees and migrants face barriers in accessing health services similar to those of the host population, but migratory status adds barriers through factors such as language and discrimination by health care providers. In addition, the health workforce in host countries often lacks support and training to provide health care that is people centred and responsive to the needs of refugees and migrants. There are, however, good examples of training

programmes and instances where refugees and migrants are integrated into the health workforce not only as doctors and nurses but also as cultural mediators, thus contributing to bridging the gap between refugees and migrants and the health care system. In many high-income contexts, migrants are a significant proportion of the host country's health workforce, highlighting the importance of the contributions that they make.

Evidence indicates that not providing information in a language that is understood by refugees and migrants inhibits their access to vaccines, medicines and wider health care services. In certain migratory contexts, larger challenges exist; for example, evidence has shown that the supply of medicines is often limited in camps and informal settlements. In addition to ensuring adequate supplies, priority must be given to providing information and access to services such as vaccination that are tailored to the health-seeking behaviour and living context of refugees and migrants.

Developing a refugee- and migrant-sensitive health system starts with the leadership and governance building block. When policies are inclusive and when support structures exist for implementation and monitoring, initiatives to reduce health inequalities among refugees and migrants yield better and faster results. For example, the evidence clearly indicates that large out-of-pocket payments often prohibit

refugees and migrants from accessing the care they need. A lack of awareness about subsidized care, including free vaccination for children, was also reported in refugee contexts where health care utilization by refugees was low.

One such measure is the implementation of UHC in some countries, which facilitates easier inclusion of refugees and migrants. However, as shown in this report, certain groups of migrants, including irregular migrants, are still often excluded from accessing health care, resulting in financial hardship and suboptimal care. A positive example is legislation in some countries that requires employers to provide health insurance for employees, including migrant workers. An example of inclusion occurred when restrictions on accessing health systems were removed so that refugees and migrants could be tested for and vaccinated against COVID-19.

UHC has been an integral part of WHO's and others' policy frameworks for several years. The COVID-19 pandemic brought about the most unprecedented public health and socioeconomic crisis of our lifetime. This affects us all, particularly vulnerable populations, which often include refugees and migrants. The pandemic provides the backdrop for increasing advocacy for the right to the enjoyment of the highest attainable standards of physical and mental health for all, including for refugees and migrants. Assessing the public health and social impacts of addressing COVID-19 preparedness, prevention and control showed us that our systems are only as strong as our weakest link. Therefore, protecting the health of refugees and migrants through the implementation of informed policies and interventions is critically important to public health protection for all citizens.

WHO's vision is to enable integrated approaches to health systems resilience to

Developing a refugee- and migrant-sensitive health system starts with the leadership and governance building block.

move towards UHC and health security based on a foundation of PHC, including essential public health functions and a focus on equity. This will not be achieved without the inclusion of refugees and migrants.

6.1.5 Refugees and migrants are not visible in global data sets: Sustainable Development Goal targets will be missed

This report made a unique attempt in Chapter 5 to extensively explore major global data sets from household and other topical surveys in an attempt to gauge progress towards the SDGs relevant to migration and health, particularly those aimed at reducing inequalities in access to health care services and in ensuring health for all. However, this exploration highlighted the inadequacies of the data. Although the world has well-established international survey instruments that are constantly improving, the largest data sets currently yield relatively little robust, comparable information about the health of refugees and migrants, and these data are from only a small number of countries and for only a small number of indicators. The main challenge in HIS arises from the lack of actionable data and effective indicators that would allow for the disaggregation of data by migratory status.

This report's findings of unrepresentative samples and unclear definitions of migratory status – among other data inadequacies – highlight the main challenge: calls made 5 years ago by all Member States for data to be disaggregated by migratory status (and other factors) by 2020 (SDG Target 17.18) have yet to be answered in any comprehensive or useful way. Data do not currently permit accurate measurement of the progress made by and for refugees and migrants towards achieving the SDG targets. However, Chapter 5 suggests that some quick wins could be possible by

modifying and adapting these surveys and other national and international data collection systems to overcome these problems.

The world is currently not on track to meet most of the health and health-related SDG targets and the progress made has been uneven. The majority of low- and middle-income countries in Africa, Asia, Latin America and the Small Island Developing States have a high likelihood of excluding marginalized, poor and vulnerable population groups such as refugees and migrants. Displacement arising from conflicts and climate crises is also on the rise and is becoming protracted. This includes but is not limited to crises in the African Sahel and Tigray regions, as well as in Afghanistan, the Democratic Republic of the Congo, Myanmar, Nigeria, Somalia, the Syrian Arab Republic, Ukraine, the Bolivarian Republic of Venezuela, Yemen and several other countries and areas. These crises stall the already slow or modest progress made towards achieving the SDGs, and in some cases, even reverse it.

The COVID-19 pandemic created deep economic turmoil around the world and near financial meltdown in many low- and middle-income countries, many of which host labour migrants. The pandemic also halted or reversed progress in health and, in turn, resulted in major threats beyond disease or health itself. About 90% of countries are still reporting one or more disruptions to essential health services, and data from a few countries show that the pandemic has shortened life expectancy.

Not surprisingly, the COVID-19 pandemic has disproportionately affected disadvantaged groups, including irregular refugees, migrants and asylum seekers. The pandemic has demonstrated the importance of UHC and multisectoral coordination for health emergency preparedness. Moreover, to design effective pandemic policy

interventions, governments will need to improve and strengthen the collection of basic demographical and epidemiological data, with disaggregation for various variables including for migratory status.

Before the world was able to recover from the pandemic, unprecedented numbers of refugees and IDPs were observed at the highest levels since the Second World War. The war in Ukraine is triggering global ripple effects through multiple channels, including commodity markets, trade, financial flows, market confidence and displaced people. If protracted, it can further dampen global growth, peace and security around the world, which are fundamental enablers and determinants for promoting health of refugees and migrants (2).

These situations seriously put at risk the achievability of the health and health-related SDG targets, including addressing the health needs of refugees and migrants (3).

6.2 The way forward: health for a world in motion

6.2.1 Health and migration: a global health priority

This report shows there is growing recognition that the health needs of refugees and migrants are a global health priority. These needs require concerted action beyond the health sector, requiring coordination between health and other ministries to bring about whole-of-government and whole-of-society approaches to address health and migration issues at the national level. WHO seeks to integrate health and migration into its coordination and consolidation efforts with Member States, key UN agencies and non-state actors, including NGOs and civil society organizations, to drive an international health agenda that will have a

measurable impact on improving the health of refugees and migrants. Additionally, refugees and migrants must be active participants not only in policy-making but also in implementation.

Fundamentally, collective action will require greater political dedication and the necessary resources to ensure that policies for health systems and services include refugees and migrants, regardless of their legal status. In the long run, the "othering" of refugees and migrants needs to be reduced and eventually removed to avoid "us versus them" discussion in policy-making and society at large.

As seen in Chapter 1, there have been several successful policy initiatives at global and regional levels during recent years. These have resulted in some national measures, such as including refugees and migrants in health policies, as highlighted in Chapters 2 to 4. However, as Chapters 2 and 3 show, there still exist relatively large health inequalities among refugees and migrants. This illustrates the gap between policy and practice and highlights the need to both translate policy into practice and to follow up the implementation of policies with monitoring for health outcomes. Chapter 5 shows that this follow-up is almost impossibly difficult with the routine data collection systems currently in place.

Interesting patterns emerge from the evidence. The majority of the evidence reviewed for Chapters 2 to 4 comes mainly from only three of the six WHO Regions, covering mainly high-income destination countries, while the remaining regions also host a significant proportion of refugees and migrants. This demonstrates the urgent need to support regions to develop capacity for research and evidence-generation activities so that the data reflect the magnitude and characteristics of the refugee and migrant populations across all regions.

Although refugees and asylum seekers account for only 12% of individuals who cross an international border, according to estimates from UNDESA (4), they account for 34% of those studied in the literature that was reviewed. Almost one third of the literature had no indication of which migrant group was studied. The most commonly studied health issues were communicable diseases and mental health. While these studies have produced key evidence in these areas, other health issues such as NCDs and SRH need to have similar attention. This will allow for a more comprehensive analysis of the health burden on refugees and migrants. It is crucial that the data used for evidence-informed policy-making are representative of the target population. Therefore, efforts to address the unrepresentative nature of the literature that is available need to be put in place.

This report shows that refugee- and migrant-inclusive policies exist. The report also shows that, while it is important to review and revise existing policies and develop new evidence-informed policies, it is not the lack of policies, but the lack of implementation and effective monitoring necessary for creating an accountability framework that lead to health inequalities.

6.2.2 Towards concerted efforts: a paradigm shift

It is time for governments, United Nations and non-United Nations organizations, NGOs and civil society organizations and other non-state actors, including refugee and migrant advocacy groups and other stakeholders, to work together to "walk the talk" and to assist Member States, national and international policy-makers and actors on the ground to translate policies and guidelines into practice. These efforts must be coupled with an effective monitoring framework to ensure accountability, to track progress and to take corrective actions.

Ultimately, national governments already have several tools that can improve the health of refugees and migrants. Clear plans of action and for implementation are needed at the subnational and national levels in order to have a real impact locally while contributing to global actions and accelerating progress towards global goals and targets, including those related to the SDGs. However, such plans must be truly agreed upon by a range of sectors and stakeholders at country level first and then at the regional and global levels if real progress is to be achieved, in line with the whole-of-government, whole-of-society and Health in All Policies approaches. WHO's Health and Migration Programme, the United Nations and other international organizations will support Member States and national authorities in these efforts.

With the overall aim of supporting the highest attainment of health for refugees and migrants, the following action points are provided to focus the thinking of governments and other stakeholders around the world to help them to work together to strengthen policies and translate these into interventions to bring about real progress in the field of health and migration.

6.2.3 Effectively integrating refugees and migrants into universal health coverage and primary health care

If integration of refugees and migrants into UHC and PHC is to be achieved, it is essential to support WHO's drive towards a radical reorientation of health systems towards PHC as the foundation of UHC. This must be coupled with a shift towards health promotion and disease prevention by addressing health determinants and risks; strengthening systems and tools for epidemic and pandemic preparedness and response, supported by governance and

financing reforms; and harnessing the power of science, research innovation, data and digital technologies. These are foundational elements for the WHO Health and Migration Programme. WHO further affirmed this during the Seventy-fifth World Health Assembly (2022) and reiterated its commitment to work with partners to help Member States to achieve their SDG aspirations of meeting health and health-related targets and to leave no one behind, including any refugee and migrant.

Restoring, expanding and sustaining access to essential health services will be needed, particularly those focusing on health promotion and disease prevention, as well as reducing out-of-pocket spending. This also means focusing on the least-served, most-vulnerable populations, particularly women, children and adolescents, and refugees and migrants. It emphasizes ensuring access to vaccines, medicines, diagnostics, devices and other health products. Finally, on the essential

issue of human resources, it emphasizes investing in a health workforce with the training, skills, tools, working environments and fair pay to deliver safe, effective and high-quality care.

With the demonstrated health implications of a world in motion for refugees and migrants in particular, WHO has undertaken a strategic approach aimed at reorienting and strengthening health systems, not only to take the needs of refugees and migrants into account but also to actively include these populations in all aspects of programming and service provision. The strategy aims to build strong health systems that benefit host populations and are responsive also to the health needs of refugees and migrants, focused on PHC as a foundation for UHC and on health security rooted in the principle of Health in All Policies (5).



A health worker attends a Burundian refugee after she delivered her baby girl at Natukobenyo health clinic in Kalobeyei settlement.
© UNHCR / Samuel Otieno

6.2.4 Global action plan

The SDGs and WHO's GPW13 provide the global context for WHO's Global Action Plan on promoting the health of refugees and migrants (the GAP) (6). The goal of the GAP is to assert health as an essential component of protection and assistance for refugees and migrants and of good migration governance. More specifically, the GAP aims to improve global health by addressing the health and well-being of refugees and migrants inclusively and comprehensively as part of holistic efforts to respond to health needs in any setting. It recognizes that, to prevent inequities, the public health opportunities and the challenges offered by refugees and migrants cannot be separated from those of the host population. This approach is justified not only by humanitarian motivations but also because it reflects rational public health practice. It also reflects the urgent need for the health sector to deal more effectively with the impacts on health of displacement and migration.

6.3 Policy and practice

6.3.1 Develop short- and long-term public health action plans that include refugees and migrants, and support their implementation

Policies relating to health and migration should be built on documented health needs and evidence-based standards and practices. This requires ensuring policy coherence among the ministries responsible for the range of sectors and ministries that affect the health status of refugees and migrants; health and also finance, social welfare, labour, immigration, housing and education. Such policies should address the immediate health risks resulting from inadequate migration policies – such as working conditions, accommodation, conditions in camps and access to health care, preventive and SRH services – and the impacts of the social determinants of health.

Policies should deal specifically with the needs of subpopulations of refugees and migrants that are particularly vulnerable. These include those with poor access to preventive and curative health care; women and children; those affected by sex- and gender-based disadvantages, exclusionary processes, stigma and discrimination and other intersecting discriminations, such as age and ethnicity; and the special needs of UASC. Policies should provide for regular assessments to analyse whether the health system is meeting the needs of refugees and migrants.

6.3.2 Strengthen the capacity and increase the sensitivity of health systems to meet the specific health needs of refugees and migrants

Policies related to refugees and migrants are often siloed, and policy coherence may be absent if the health sector is excluded from or has a limited voice in policy-making (7). The same is true if the health sector does not include other sectors in planning, implementation and follow-up of policies.

Health systems should be strengthened so they have the capacities needed to respond to the health needs of the whole population, including refugees and migrants, thus enhancing the continuity and quality of care as well as workforce competencies and achieving UHC. In many countries, significant impact would be achieved by extending and improving occupational health services in industries with high levels of migrant workers and by placing a strong emphasis on preventive interventions.

Based on experiences gained during the COVID-19 pandemic, WHO has identified three components necessary for implementing an integrated approach to policies addressing migration and public health (8):

- protection-sensitive access to territory – enabling access to territories and asylum procedures for people who need international protection;
- migratory status flexibility – facilitating regularization of the status of irregular (undocumented) migrants to ensure they have safe and lawful access to health services; and
- non-discriminatory access to health care – providing equal access to health care for all, regardless of status, nationality, gender, age or ethnicity.

6.3.3 Enhance understanding of the health promotion and health needs of refugees and migrants

Advocacy and public health education efforts should be implemented to build support for safeguarding and promoting the health of refugees and migrants, as well as ensuring wide participation in these efforts by refugees and migrants, the public, government and other stakeholders. Refugees and migrants must be actively present as integral partners in these efforts, and solutions must be co-created with all relevant stakeholders, most importantly refugees and migrants themselves (9).

The backbone to a refugee- and migrant-sensitive health system is health professionals that have the resources and capacity to deliver appropriate services. The capacities

and capabilities of health personnel and the health sector can affect health by ensuring the availability and affordability of health promotion and disease prevention services and treatments. A critical element is to effectively include refugees and migrants as part of the health workforce and professionalize their contributions (10). Wherever possible, diaspora health workers should be included in designing, implementing and evaluating refugee- and migrant-sensitive health services and educational programmes. In addition, health and migration should be included in the graduate, postgraduate and continuing professional training of all health personnel.

6.3.4 Actively include refugees and migrants within financial and social protection systems

The health of refugees and migrants is an increasingly prominent and urgent issue of our time. Investing in their health is important not only because it is a sound public health strategy, which can bring increasingly positive impacts from migration when addressed appropriately, but also because it is a human rights issue: excluding refugees and migrants – who account for a significant proportion of the global population – from and restricting their access to health services, knowingly or inadvertently, leads to health inequalities and compromised health security. Furthermore such restrictions contravene the principle of the 2030 Agenda for Sustainable Development of leaving no one behind, WHO's transformation mantra of serving the vulnerable and the goals of many other international covenants and treaties (11–14).

Refugees and migrants often face significant social, financial and environmental disadvantages, as discussed in Chapter 2 regarding the determinants of health. For example, migratory status is often a major barrier for irregular migrants

Refugees and migrants should be integrated within social protection arrangements, including social security programmes.

to securing employment and workplace protections (15,16), while access to safe and stable housing and standards-based working conditions vary according to the inclusiveness of national policies and programmes.

Refugees and migrants should be integrated within social protection arrangements, including social security programmes. The WHO Health and Migration Programme is working across the United Nations system and with other actors and stakeholders to ensure that refugees and migrants have the protections necessary to attain the highest levels of mental and physical health (12,13). Active inclusion measures are required.

6.3.5 Strengthen accountability and indicators framework

Policies that are not informed by evidence will likely be ineffective, and gathering evidence and data without a policy framework is misguided. Therefore, the strategic direction for health and migration policy must be founded on a results framework and supported by strengthened HIS.

The responsibility to guarantee privacy and confidentiality and avoid using data to limit access to services should be respected and underpinned by a governance framework. It should be underpinned by legislation and firewalls that prevent unauthorized access to, or the abusive use of, such information. In addition, data privacy must be guaranteed, particularly as information becomes easier to exchange among databases (17). Refugees and migrants should be offered a thorough explanation so they understand why non-discriminatory health-related data are being collected and how providing these data can benefit them. At a minimum, information should be available in languages that refugees and migrants can understand to allow them to make informed decisions and give consent.

It is not the lack of policies, but the lack of implementation and effective monitoring necessary for creating an accountability framework that lead to health inequalities.

Beyond the national level, regional and international organizations concerned with the health and well-being of refugees and migrants need to work urgently to improve the availability and quality of data about their health. To this effect, WHO is actively engaged with and across the United Nations in efforts to ensure health data and indicators are fit for purpose to guarantee there is effective monitoring of SDG goals and targets.

Introducing core variables into data collection tools is a relatively straightforward first step that can be taken to facilitate disaggregation. National surveys should ensure that refugees and migrants are appropriately represented in their samples: for this to happen, trust and legal safeguards to prevent the misuse of data should exist between the people who provide data (the refugees and migrants) and those who collect and use it (the authorities and other stakeholders). For trust and safeguards to be co-created, whole-of-government and whole-of-society approaches need to be adopted, as highlighted in Chapters 2 and 4. Dismantling the silos and collaborating across sectors and institutional boundaries present both challenges and opportunities for all aspects of refugee and migrant health. Based on the effective and collaborative approaches used in preparing this report,

WHO, through its Global Data Initiative on Health and Migration, will use a multipronged approach to strengthen data and evidence about health and migration. This involves working directly with Member States, with facilitation by regional and country offices, as well as through regional bodies of United Nations agencies. However, it should also involve working across WHO programmes and with regional and country offices through the Data Hub and Spoke Collaborative to make various health data collection efforts fit for purpose for health and migration monitoring. Similarly, such efforts will be needed to work with United Nations agencies, international organizations and non-state actors to embed health and migration data and monitoring in their data efforts. In addition to strengthening existing approaches to data collection and evidence generation, emphasis should be placed on innovation and the use of digital technologies, such as big data, machine learning and artificial intelligence.

6.3.6 Promote global research, strengthen knowledge production and build research capacity in health and migration

Health and migration research is a priority for WHO's Health and Migration Programme and across all public health impact activities for WHO, ensuring policy impact through supporting evidence-informed decision-making. The prioritization of research about health and migration being developed by WHO's Health and Migration Programme is a vital part of filling global evidence gaps and it outlines priority research themes as they relate to health and migration under the Triple Billion Targets. The aim of this prioritization is to overcome not only the challenges of limited research about health and migration in low- and middle-income countries but also the limited focus on only certain groups or diseases. This requires

efforts on a variety of issues: capacity-building for institutions in the global south; making health and migration a global research and evidence-gathering priority for donors; supporting the development of regional research networks; and engaging refugee and migrant populations in both the process of research as well as in operational research. In addition, translating research and evidence into policy and practice often remains a challenge, with substantive gaps between the evidence base and policy and implementation.

This prioritization of global research also reflects the focus of the SDGs and the *Global compact for safe, orderly and regular migration* on ensuring access to health services for refugees and migrants, both globally and at the country level (18). Consequently, the Health and Migration Programme will collaborate with key stakeholders – national authorities, United Nations agencies and non-state actors – to conduct operational research in the priority areas identified, with the objective of building research capacity on health and migration at the country, regional and global levels and ensuring that the evidence drives policies and implementation. By strengthening health and migration research globally, the Programme will support the effective development of evidence-informed normative products and knowledge production based on the needs and gaps identified at the country level.

References

1. Global trends report 2021. Geneva: United Nations High Commissioner for Refugees; 2022 (<https://www.unhcr.org/62a9d1494/global-trends-report-2021>, accessed 21 June 2022).
2. Guénette JD, Kenworthy P, Wheeler C. Implications of the war in Ukraine for the global economy. Washington (DC): World Bank Group; 2022 (<https://thedocs.worldbank.org/en/doc/5d903e848db1d1b83e0ec8f744e55570-0350012021/related/Implications-of-the-War-in-Ukraine-for-the-Global-Economy.pdf>, accessed 3 June 2022).
3. Sustainable Development Goals progress chart 2021. New York: United Nations Statistics Division, Department of Economic and Social Affairs; 2021 (<https://unstats.un.org/sdgs/report/2021/progress-chart-2021.pdf>, accessed 3 June 2022).
4. International migrant stock 2020 [online database]. New York: United Nations Department of Economic and Social Affairs, Population Division; 2020 (<https://www.un.org/development/desa/pd/content/international-migrant-stock>, accessed 28 May 2021).
5. Health in all policies: Helsinki statement. Framework for country action. Geneva: World Health Organization, Finland Ministry of Social Affairs and Health; 2014 (<https://apps.who.int/iris/handle/10665/112636>, accessed 5 May 2022).
6. Global action plan on promoting the health of refugees and migrants, 2019–2023. In: Seventy-second World Health Assembly, Geneva, 20–28 May 2019. Resolutions and decisions, annexes. Geneva: World Health Organization; 2019: Annex 5 (WHA72/2019/REC/1; https://apps.who.int/gb/ebwha/pdf_files/WHA72-REC1/A72_2019_REC1-en.pdf).
7. Interrelations between public policies, migration and development. Paris: Organisation for Economic Co-operation and Development; 2017 (https://www.oecd-ilibrary.org/development/interrelations-between-public-policies-migration-and-development_9789264265615-en, accessed 25 April 2022).
8. Refugees and migrants in times of COVID-19: mapping trends of public health and migration policies and practices. Geneva: World Health Organization; 2021 (<https://apps.who.int/iris/handle/10665/341843>, accessed 3 June 2022).
9. MacFarlane A, Ogoro M, de Freitas C, Niranjana V, Severoni S, Waagensen E. Migrants' involvement in health policy, service development and research in the WHO European Region: a narrative review of policy and practice. *Trop Med Int Health*. 2021;26(10):1164–76. doi:10.1111/tmi.13643.
10. Health of refugees and migrants: regional situation analysis, practices, experiences, lessons learned and ways forward. New Delhi: WHO Regional Office for South-East Asia; 2018 (https://www.who.int/docs/default-source/documents/publications/health-of-refugees-and-migrants-searo-2018.pdf?sfvrsn=b7c1ad1f_1, accessed 3 June 2022).
11. Resolution A/RES/70/1. Transforming our world: the 2030 Agenda for Sustainable Development. In: Seventieth session, United Nations General Assembly, 25 September 2015. New York: United Nations; 2015 (https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E, accessed 19 January 2022).
12. General comment No. 14: the right to the highest attainable standard of health (article 12 of the International Covenant on Economic, Social and Cultural Rights). In: Committee on Economic, Social and Cultural Rights, Twenty-second session, Geneva, 25 April–12 May 2000. New York: United Nations Economic and Social Council; 2000 (E/C.12/2000/4; <https://digitallibrary.un.org/record/425041?ln=en>, accessed 25 April 2022).
13. General comment No. 19: the right to social security (article 9 of the International Covenant on Economic, Social and Cultural Rights). In: Committee on Economic, Social and Cultural Rights, Thirty-ninth session, 5–23 November 2007. New York: United Nations Economic and Social Council; 2007 (E/C.12/GC/19; <https://www.refworld.org/docid/47b17b5b39c.html>, accessed 3 January 2022).
14. Leaving no one behind: equality and non-discrimination at the heart of sustainable development - a shared United Nations System framework for action. New York: United Nations System Chief Executives Board for Coordination; 2017 (https://unsceb.org/sites/default/files/imported_files/CEB%20equality%20framework-A4-web-rev3.pdf, accessed 13 January 2022).
15. Legido-Quigley H, Pocock N, Tan ST, Pajin L, Suphanchaimat R, Wickramage K et al. Healthcare is not universal if undocumented migrants are excluded. *BMJ*. 2019;366:14160. doi:10.1136/bmj.14160.
16. Moyce SC, Schenker M. Occupational exposures and health outcomes among immigrants in the USA. *Curr Environ Health Rep*. 2017;4(3):349–54. doi:10.1007/s40572-017-0152-1.
17. Collection and integration of data on refugee and migrant health in the WHO European Region: technical guidance. Copenhagen: WHO Regional Office for Europe; 2020 (<https://apps.who.int/iris/handle/10665/337694>, accessed 12 November 2021).
18. Resolution A/RES/73/195. Global compact for safe, orderly and regular migration. In: Seventy-third session, United Nations General Assembly, New York, 11 January 2019. New York: United Nations; 2019 (https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_73_195.pdf, accessed 3 June 2022).

ANNEX

Methodology

A.1 Methodology for Chapters 2–4

The evidence base for Chapters 2–4 is a review of recent literature about the health of refugees and migrants. The review included both peer-reviewed scientific literature and grey literature in English and in the other major languages of WHO regions: Arabic, French, German, Italian, Portuguese, Russian and Spanish. Literature published between January 2015 and June 2021 was included to cover the most recent work, but key documents published prior to 2015 and after June 2021 were also considered.

A literature review with a relatively wide scope and broad search terms was deemed appropriate, given that this report aims to establish a baseline of global evidence on the health of refugees and migrants. This resulted in collecting and reviewing more than 82 000 documents. In addition to collecting a vast amount of literature, several key experts from each of the WHO regions were involved in the entire review and analysis processes. This not only enabled literature to be reviewed in regional languages but also allowed for regional variations in the search strategy and analysis. To supplement the broad review conducted for the report, a more targeted review of selected topics was conducted and is still being conducted through another flagship publication series from the WHO Health and Migration Programme: the Global Evidence Review on Health and Migration. Table A.1 provides a detailed list of inclusion and exclusion criteria for the literature reviewed for this report.

Several key databases and the websites of key ministries and organizations were also searched (Box A.1). Additional targeted literature searches were conducted to address gaps identified during the searches.

The evidence review was initially conducted by regional experts in the six WHO regions. The regional reviews were then further integrated to develop the global synthesis that is presented in Chapters 2–4.

Of the more than 82 000 documents collected, the review finally synthesized evidence from more than 3250 documents that met the inclusion criteria.

The WHO Region of the Americas, WHO European Region and WHO Eastern Mediterranean Region each accounted for approximately one fourth of the total amount of literature reviewed, with the WHO African Region, WHO South-East Asia Region and WHO Western Pacific Region accounting for the remainder of the literature (Fig. A.1).

The largest proportion of documents reviewed (30%) was quantitative studies, followed by qualitative studies (20%). The grey literature reviewed included surveys and reports from organizations (14%) and observational studies (11%).

Approximately one third of the evidence in the included literature was about refugees, and another one third did not specify the refugee or migrant groups studied. The remaining third

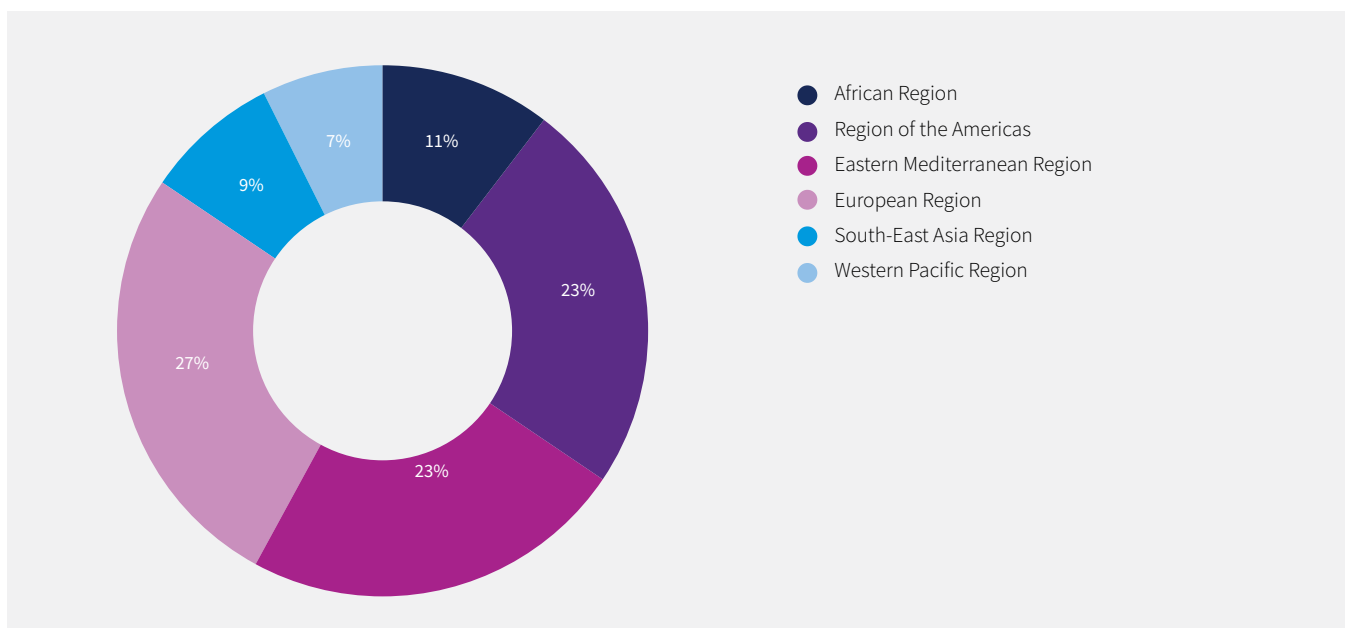
provided information about labour migrants (17%) and other groups such as asylum seekers, irregular migrants and international students (Fig. A.2).

Table A.1. Inclusion and exclusion criteria for the review of the health of refugees and migrants

Category	Criteria	
	Inclusion	Exclusion
Population	Refugees and/or international migrants	Citizens of the host country and/or ethnic or racial minorities if there was no indication that international migrants were present among the study participants; internal migrants; IDPs
Study focus	Health and/or factors affecting health	NA
Geographical location of study	Studies performed in any of the six WHO regions	NA
Study design and type	Qualitative, quantitative and mixed methods; descriptive and analytical studies, experimental (randomized clinical trials) or observational (cohort studies, cross-sectional, case-control, case studies, case series); meta-analyses	Narrative reviews, scoping reviews, systematic reviews, letters to the editor, expert opinions
Publication date	From January 2015 to June 2021; however, key documents published before 2015 and after June 2021 were also considered	NA

NA: not applicable.

Fig. A.1. Proportion of documents included in the review, by WHO region



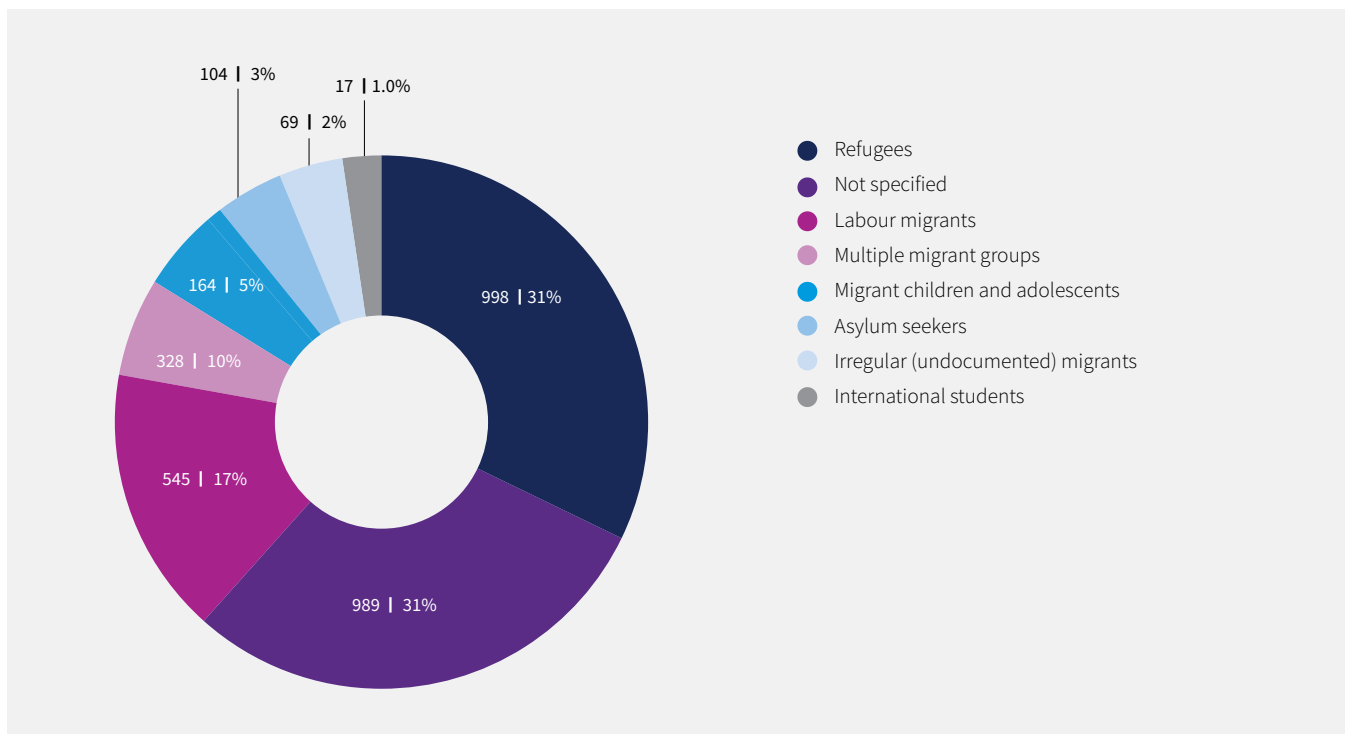
Box A.1.
Databases and sources searched for the review

Source	URL
CABI Global Health	https://www.cabi.org/publishing-products/global-health/
Cochrane Library	https://www.cochranelibrary.com/
DANS EASY	https://easy.dans.knaw.nl/ui/home
Eldis	https://www.eldis.org/
Embase	https://www.embase.com/
Google	https://google.com/
Google Scholar	https://scholar.google.com/
Health Policy Reference Center	https://www.ebsco.com/products/research-databases/health-policy-reference-center
International Bibliography of the Social Sciences	https://about.proquest.com/en/products-services/ibss-set-c/
Lancet Migration	https://migrationhealth.org/
Migrant Integration Policy Index	https://www.mipex.eu/
OpenGrey	https://opengrey.eu/
OpenSIGLE	http://www.greynet.org/opensiglerepository.html
PsycInfo	https://www.apa.org/pubs/databases/psycinfo
PubMed/MEDLINE	https://pubmed.ncbi.nlm.nih.gov/
Sabinet	https://sabinet.co.za/
SciELO	https://scielo.org/
Scopus	https://www.elsevier.com/en-gb/solutions/scopus
Semantic Scholar	https://www.semanticscholar.org/
SOPHIE	http://www.sophie-project.eu/project.htm
Web of Science	https://clarivate.com/webofsciencigroup/solutions/web-of-science/
WHO documents	https://apps.who.int/iris/
Websites of international organizations (e.g. IOM, UNHCR), universities, research institutes, health departments, research networks and NGOs	Various
Websites of ministries of health, foreign affairs and immigration; and national public health agencies	Various

Health status was the health issue studied most often (58% of the documents reviewed), followed by health determinants (29%) and health systems (21%). Among the documents that explored health status, approximately one fourth studied communicable diseases (24%) or mental health (21%), and the remainder studied MCH, NCDs, occupational health and SRH.

Approximately two thirds of the documents about health systems focused on service delivery (62%). Other building blocks of health systems, such as the health workforce and leadership or governance, were studied in less than 10% of documents.

Fig. A.2. Proportion of documents included in the review, by migrant group studied



A.2 Methodology for Chapter 5

The review for Chapter 5 began by considering which large data sets to explore. Censuses and household surveys have traditionally been reliable sources of global and regional indicators of health. Standards for conducting them have been established and accepted by the international statistics community and, with technical guidance from United Nations agencies, many countries have adopted questionnaires and data codes for such work (1).

Both approaches have their strengths and weaknesses, and this is particularly true when attempting to disaggregate data on migratory status (Table A.2). However, global surveys such as BADEHOG (3), DHS-VII (4), ESS (5), MICS6 (6) and PISA (7) may currently

offer greater potential for disaggregation since they provide comparable global data sets with information about health, determinants of health and migratory status. For this reason, these major international surveys were chosen as the data sets for the review (Box A.2). As a result, 2 294 household surveys were screened based on the inclusion criteria mentioned in the next section.

Other data sources were also considered, including civil registration and vital statistics systems and the administrative data produced by government HIS. However, these data sources are not always accessible for research purposes. Moreover, they pose problems regarding privacy, and their data are not always comparable (8).

Table A.2. Censuses versus surveys: strengths and weaknesses for analyses of health and migration

Characteristic	Data source	
	Population census	Household survey
Strengths	<ul style="list-style-type: none"> • Covers the whole population • Collects information about a broad range of topics • Can produce subpopulation-level estimates if the specific group is included in the census frame • Can be used with other data sources that are not appropriate for disaggregation to model disaggregated estimates for specific subgroups • Can produce proxy estimates (i.e. use substitute measures for original indicators) • Can provide data for comparative analyses across countries and over time by applying harmonized coding schemes 	<ul style="list-style-type: none"> • Can collect in-depth information about health and employment (e.g. DHS, MICS, labour-force surveys) • Usually conducted more frequently than censuses, thus providing timelier data • Specialized and targeted surveys may also be useful for collecting data about certain subgroups, such as refugees and migrants • Can be used with other data sources to produce estimates for specific groups
Weaknesses	<ul style="list-style-type: none"> • Census questionnaires cover a limited number of topics: they are not designed to collect in-depth health data or information • Information is not timely since most censuses are conducted only every 10 years • Access to complete census data is often limited, which reduces full exploitation of the data and information 	<ul style="list-style-type: none"> • Covers a sample population and may miss populations in irregular settlements, hard-to-reach groups or those who are not part of national census coverage • Disaggregation by migratory status may not be appropriate due to issues arising from the sample size

Box A.2.

International surveys included in this review

Five surveys were selected for analysis and exploration in this review: the Household Survey Databank (BADEHOG; *Banco de Datos de Encuestas de Hogares*) (3), Demographic and Health Survey (DHS) (4), European Social Survey (ESS) (5), Multiple Indicator Cluster Survey (MICS) (6) and the Organisation for Economic Co-operation and Development's Programme for International Student Assessment (PISA) (7).

BADEHOG. This databank is maintained by the Economic Commission for Latin America and the Caribbean. It compiles and harmonizes household surveys from 18 countries in the WHO Region of the Americas.

DHS. This survey has been supported by the United States Agency for International Development since 1985 and has collected and analysed accurate and representative data about populations, health, HIV prevalence and nutrition through more than 400 nationally representative surveys in more than 90 countries. Originally designed as a follow-up to the World Fertility Survey and the Contraceptive Prevalence Survey projects, the DHS Program has provided technical assistance for more than 350 surveys, thereby advancing global understanding of trends in health and population in developing countries. The DHS Program is implemented in overlapping 5-year phases.

ESS. This cross-national survey has been conducted throughout Europe since 2001. Every 2 years, face-to-face interviews are conducted with people from newly selected, cross-sectional samples. The survey measures the attitudes, beliefs and behaviour patterns of diverse populations in more than 30 nations.

MICS. This survey has been supported by the United Nations Children's Fund since 1995; it was started in response to the World Summit for Children in 1990 to measure mid-decade progress. A total of 118 countries have carried out one or more MICS rounds, generating nationally representative data about key indicators of the well-being of children and women, and helping to shape policies to improve their lives.

PISA. This survey measures the ability of 15-year-olds to use their reading, mathematics and science knowledge and skills. It provides comparable data aimed at helping countries to improve education policies and outcomes. First carried out in 2000, it is repeated every 3 years.

A.2.1 Selecting countries for the review

The following criteria were used to determine which countries and surveys to include in this review:

- survey data and documentation had to be available in English;
- the survey reference period had to be from 2015 onwards in order to capture the most recent trends; and

- the percentage of international migrants in the total sample had to be at least 1% in order to conduct a meaningful analysis.

The countries selected from each survey are shown in Table A.3.

Table A.3. Countries considered for this review, by survey and WHO region

Survey and WHO region	Country or area
DHS-VII and MICS6	
African Region	Benin, Burundi, Cameroon, Central African Republic, Chad, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Lesotho, Liberia, Malawi, Mali, Sao Tome and Principe, Sierra Leone, Togo, Zimbabwe
Region of the Americas	Guyana, Suriname
South-East Asia Region	Indonesia, Nepal, Thailand
European Region	Armenia, Kosovo, ^a Montenegro
Eastern Mediterranean Region	Jordan
WHO Western Pacific Region	Tonga
PISA 2018	
African Region	NA
Region of the Americas	Argentina, Canada, Chile, Costa Rica, Dominican Republic, Mexico, Panama, United States, Uruguay
South-East Asia Region	NA
European Region	Austria, Azerbaijan (Baku), ^b Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kosovo, ^a Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, North Macedonia, Norway, Portugal, Republic of Moldova, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom
Eastern Mediterranean Region	Jordan, Lebanon, Qatar, Saudi Arabia, United Arab Emirates
Western Pacific Region	Australia, Brunei Darussalam, China (Hong Kong Special Administrative Region and Macao Special Administrative Region), Malaysia, New Zealand, Philippines, Singapore
ESS 2002–2018	
European Region	Belgium, Estonia, Finland, France, Germany, Ireland, Netherlands, Norway, Portugal, Slovenia
BADEHOG 2017–2019	
Region of the Americas	Argentina, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Panama, Paraguay, Uruguay

^a All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

^b In Azerbaijan, PISA 2018 was limited to the city of Baku.

A.2.2 Countries excluded

A total of 77 candidate countries had conducted MICS6 and DHS-VII and had their data available online for further analysis (Fig. A.3). However, 17 lacked indicators of migratory status, which reduced the list to 60. In only 36 of these countries did international migrants represent 1% or more of those included in the survey sample. Of these, six countries were excluded because their surveys provided data only from female respondents. However, since these six satisfied all other criteria, they were included in the tables that discuss gender-specific issues:

- Table 5.7. Percentage of women using modern or traditional contraception, by migratory status;
- Table 5.8. Percentage of women attending antenatal care, by number of visits and migratory status;
- Table 5.9. Percentage of women (15–49 years) and their daughters (0 months to 14 years) in the WHO African Region who have experienced FGM, by migratory status; and

- Table 5.10. Percentages of women (15–49 years) subjected to physical or sexual violence by a husband or partner during the previous 12 months, by migratory status.

Another two countries were excluded because their surveys were carried out among ethnic communities in specific settlements rather than across the entire country.

Countries with data cell count below 25 were excluded following DHS guidelines on statistics.

Using the SDGs as reporting frameworks, the items in DHS-VII and MICS6 were reviewed to map indicators of health to the SDGs (Table A.4). These indicators were then compared with the SDG indicators related to health. This mapping can be done for any reporting framework that considers health and migration. See section A.3 for an explanation of how the indicators were calculated.

Fig. A.3. Country selection criteria for review of data from the DHS-VII and MICS6 surveys

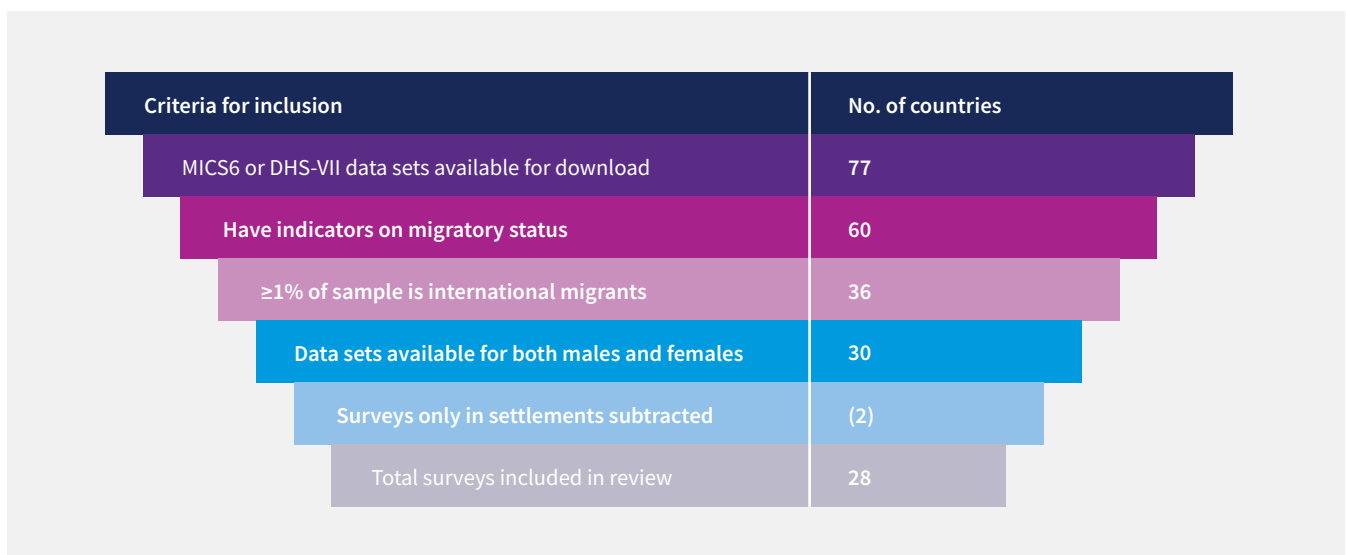


Table A.4. SDGs and relevant survey indicators

Survey and indicators of health				
SDG	BADEHOG	DHS-VII and MICS6	ESS	PISA
1. End poverty in all its forms everywhere	Materials used to build homes, including floors, walls and roof	<p>Wealth index</p> <ul style="list-style-type: none"> Has an account in a bank or financial institution Main material for home's flooring Main material for home's roof Main material for home's walls Various household possessions 	Main source of income for household of international migrants	<ul style="list-style-type: none"> Has a bank account Household annual income Family wealth index
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	NA	<ul style="list-style-type: none"> Nutritional status of children aged > 5 years BMI and height for age, weight for age, weight for height 	NA	NA
3. Ensure healthy lives and promote well-being for all at all ages	Health insurance coverage	<ul style="list-style-type: none"> Deaths due to road accidents Births attended by skilled health personnel Children received first dose of pneumococcal vaccine Children received measles vaccine Women of reproductive age (15-49 years) who have their need for family planning satisfied with modern methods Currently smoking cigarettes Health insurance coverage Type of health insurance Use of mosquito nets Anaemia Health impact of salt iodization Place of birth of youngest child (most recently born) Tested for HIV as part of antenatal care or visit BCG vaccination of children Children received hepatitis B vaccine at birth Children received one dose of pentavalent vaccine 	<ul style="list-style-type: none"> Subjective self-reported general health of international migrants Opinion of international migrants about the state of health services in the country by destination country International migrants who are hampered in their daily activities in any way by illness, disability, infirmity or mental health problem 	<ul style="list-style-type: none"> BMI of students Satisfaction of students with their health Assessment by students of their health Frequency in past 6 months of various illnesses (e.g. headache, stomach pains, back pain, feeling depressed, irritability or bad temper, feeling nervous, difficulty getting to sleep, feeling dizzy, feeling anxious)

Table A.4 contd

Survey and indicators of health				
SDG	BADEHOG	DHS-VII and MICS6	ESS	PISA
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Highest educational level completed	Highest educational level completed or whether respondent is still in school	NA	Highest level of schooling completed by student
5. Achieve gender equality and empower all women and girls	NA	<ul style="list-style-type: none"> Women and girls (15–49 years) who have ever had a partner and been subjected to physical or sexual violence by a current or former intimate partner, or both, during the previous 12 months, by type of violence and by age of respondent Women and girls aged 15–49 years who have undergone FGM Women aged 15–49 years who make their own informed decisions regarding sexual relations Decisions about contraception use made by women aged 15–49 years Decisions about own health care made by women aged 15–49 years 	NA	NA
6. Ensure availability and sustainable management of water and sanitation for all	Access to improved water sources with improved sanitation	<ul style="list-style-type: none"> Main source of drinking-water Household has place for handwashing, with observation of presence of water and soap Type of toilet facility Time needed to get drinking-water Type of toilet Type of disposal for children's stool 	NA	NA

Table A.4 contd

Survey and indicators of health				
SDG	BADEHOG	DHS-VII and MICS6	ESS	PISA
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	NA	Feeling personally discriminated against or harassed due to ethnicity or country of origin	<ul style="list-style-type: none"> Opinion of international migrants about whether immigration is bad or good for a country's economy Opinion of international migrants about whether immigrants make a country a worse or better place to live Opinion of non-migrants about the migrant population 	<ul style="list-style-type: none"> Agree or disagree that immigrant children should have the same opportunities for education as other children in the country Agree or disagree that immigrants who live in a country for several years should have the opportunity to vote in elections Student's attitude towards immigration
17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development: Target 17.18. enhance capacity-building support...to increase significantly the availability of high-quality, timely and reliable [disaggregated] data	NA	<ul style="list-style-type: none"> Number of questionnaire items with disaggregation by migratory status 	NA	NA
	NA	<ul style="list-style-type: none"> Internet use during the past 3 months Frequency of using the internet during the past month 	NA	<ul style="list-style-type: none"> Link to internet in student's home Length of time student uses Internet at school Length of time student uses Internet outside of school

NA: not applicable.

A.3 Computational method used for indicators

The indicators are computed for each country and for each migratory status using the following:

$$p_{ij} = \frac{n_{ij}}{N_{ij}}$$

where:

p_{ij} = percentage of individuals or households in the sample with a characteristic, for migratory status i of country j ;

n_{ij} = number of individuals or households in the sample with the characteristic, for migration status i of country j ;

N_{ij} = total number of sampled individuals or households with migration status i of country j ;

i = international migrant, internal migrant, or non-migrant; and

j = country satisfying the inclusion criteria.

Categories of migratory status are derived as shown in Chapter 5, Table 5.3. For example, to estimate the prevalence of stunting among international migrant children (p_{ij}) in Gambia, the counts needed are the number of international migrant children in the survey ($N_{ij} = 1253$) and the number of international migrant children in the survey who are classified as stunted ($n_{ij} = 287$), where i = international migrant and j = Gambia. The

prevalence of stunted international migrant children is 22.9%, the result of dividing 287 by 1253 and multiplying by 100. In contrast, the estimated prevalence of stunted children in the host population (internal migrants and non-migrants) of Gambia is the number of stunted children in the sample of the host population (1636) divided by number of children sampled from the host population (7974), which is a prevalence of 20.5%.

References

1. Report of the Intersecretariat Working Group on Household Surveys: note by the Secretary-General. In: United Nations Statistical Commission, Fiftieth session, 5–8 March 2019. New York: United Nations Statistical Commission; 2019 (E/CN.3/2019/25; https://digitallibrary.un.org/record/3897161/files/E_CN.3_2021_16-EN.pdf, accessed 17 November 2021).
2. Mosler Vidal E. Leave no migrant behind: the 2030 Agenda and data disaggregation. Geneva: International Organization for Migration; 2021 (https://publications.iom.int/system/files/pdf/Migrants-in-the-SDGs_5.pdf, accessed 4 October 2021).
3. BADEHOG. In: Digital repository: Economic Commission for Latin America and the Caribbean [website]. Santiago: United Nations Economic Commission for Latin America and the Caribbean; 2021 (<https://repositorio.cepal.org/handle/11362/31828>, accessed 17 November 2021).
4. Croft TN, Marshall AMJ, Allen CK. Guide to DHS statistics: DHS-7 (version 2). Rockville (MD): Measure DHS, ICF International; 2018 (https://www.dhsprogram.com/pubs/pdf/DHSG1/Guide_to_DHS_Statistics_DHS-7_v2.pdf, accessed 3 November 2021).
5. About the European Social Survey European Research Infrastructure (ESS ERIC). In: European Social Survey [website]. London: European Social Survey; 2021 (<https://www.europeansocialsurvey.org/about/>, accessed 17 November 2021).
6. About MICS. In: Multiple Indicator Cluster Survey [website]. New York: United Nations Children's Fund; 2022 (<https://mics.unicef.org/about>, accessed 30 August 2021).
7. PISA: Programme for International Student Assessment. In: Organisation for Economic Co-operation and Development [website]. Paris: Organisation for Economic Co-operation and Development; 2022 (<https://www.oecd.org/pisa/data/>, accessed 17 November 2021).
8. Collection and integration of data on refugee and migrant health in the WHO European Region: technical guidance. Copenhagen: WHO Regional Office for Europe; 2020 (<https://apps.who.int/iris/handle/10665/337694>, accessed 12 November 2021).

Health and Migration Programme (PHM)

World Health Organization
20, Avenue Appia
1211 Geneva 27, Switzerland

Web: <https://www.who.int/teams/health-and-migration-programme>
Email: healthmigration@who.int

