World Health Organization

PRIMARY HEALTH CARE AS AN ENABLER FOR "ENDING THE EPIDEMICS" OF HIGH-IMPACT COMMUNICABLE DISEASES

TECHNICAL SERIES ON PRIMARY HEALTH CARE

World Health Organization

PRIMARY HEALTH CARE AS AN ENABLER FOR "ENDING THE EPIDEMICS" OF HIGH-IMPACT COMMUNICABLE DISEASES

TECHNICAL SERIES ON PRIMARY HEALTH CARE

Acknowledgements

This document was produced as part of the technical series on primary health care on the occasion of the Global Conference on Primary Health Care under the overall direction of the Global Conference Coordination Team, led by Ed Kelley (WHO headquarters), Hans Kluge (WHO Regional Office for Europe) and Vidhya Ganesh (UNICEF). Overall technical management for the series was provided by Shannon Barkley (Department of Service Delivery and Safety, WHO headquarters) in collaboration with Pavlos Theodorakis (Department of Health Systems and Public Health, WHO Regional Office for Europe).

This document was produced under the technical direction of Mubashar Sheikh and Ren Minghui and was written by Richard Carr (Communicable Diseases Cluster, WHO, Geneva).

Valuable comments and suggestions to the first draft were made by WHO collaborating partners and office staff, in particular, Ghazanfar Khan (Consultant, WHO headquarters), Helena Nygren-Krug and Keith Sabin (UNAIDS, Geneva, Switzerland); Eleanora Hvazdziova (UNAIDS, Regional Office for Eastern Europe and Central Asia, Moscow); Anne Detjen and Rory Nefdt (UNICEF, New York); Andrew Ball, Philippa Easterbrook, Yvan Hutin (HIV and Hepatitis Department, WHO, Geneva); Katherine Floyd, Nobuyuki Nishikiori, Diana Weil, Matteo Zignol (Global TB Programme, WHO, Geneva); Andrea Bosman, Salim Sadruddin (Global Malaria Programme, WHO, Geneva); Gautam Biswas, Daniel Argaw Dagne, Christopher Fitzpatrick and Raman Velayudhan (Control of Neglected Tropical Diseases Department, WHO, Geneva).

The views expressed in this document do not necessarily represent the opinions of the individuals mentioned here or their affiliated institutions.

WHO/HIS/SDS/2018.43

Contents

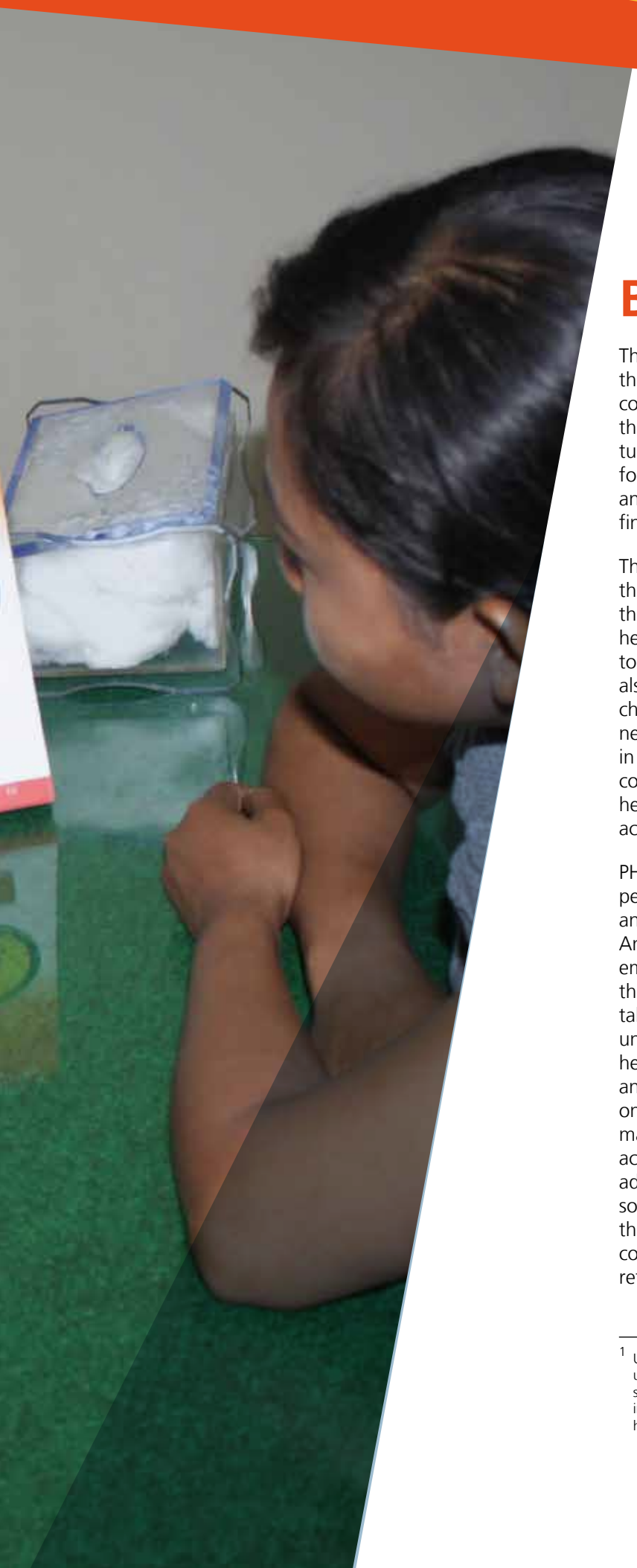
Boxes

Tables

Abbreviations

ART	antiretroviral therapy
CAG	community ART group
HBV	hepatitis B virus
HCV	hepatitis C virus
HEW	health extension worker
LiST	Lives Saved Tool
MDG	Millennium Development Goal
NTD	neglected tropical disease
PHC	primary health care
SDG	Sustainable Development Goal
TB	tuberculosis
UNICEF	United Nations Children's Fund
VHW	village health worker
WHO	World Health Organization


Bagaimana HIV Menular?
perpindahan cairan tubuh
Kondom
Kondom



Background

The Millennium Development Goals (MDGs) showed that global commitment and collective action could significantly reduce the disease burdens of three deadly communicable diseases: HIV/AIDS, tuberculosis (TB) and malaria. The MDGs helped focus efforts on these three deadly diseases and leveraged disease-specific programmes and financing, thus achieving significant progress.

The Sustainable Development Goals (SDGs) reflect the growing complexity and interdependence of the global development agenda. In the area of health and well-being, SDG 3 recognizes the need to build on progress made under the MDGs while also addressing a much broader range of health challenges, notably noncommunicable diseases and neglected tropical diseases (NTDs), and doing so in the context of an overarching universal health coverage framework (SDG target 3.8). Primary health care (PHC) provides the foundation for achieving universal health coverage.

PHC helps to advance country-focused, integrated, people-centred health services that place people and communities at the centre of the health system. An integrated, people-centred approach helps to empower people and communities to ensure that the needs of the most vulnerable populations are taken into consideration while moving towards universal health coverage *(1)*.[1] This will impact how health services are planned, delivered, monitored and evaluated. Primary care strategies that focus on engaging and empowering underserved and marginalized subpopulations are essential for achieving universal health coverage, as well as addressing broader societal goals such as equity, social justice, solidarity and social cohesion *(2)*. PHC, through multisectoral action, also independently contributes to the achievement of other SDGs, reflecting a Health in All Policies approach.

[1] Universal health coverage means that all people and communities can use the promotive, preventive, curative, rehabilitative and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship *(1)*.

PHC is the underlying mechanism for achieving the three universal health coverage objectives: (a) equity in access to health services – everyone who needs services should get them, not only those who can pay for them; (b) the quality (and range) of health services should be good enough to improve the health of those receiving services; and (c) people should be protected against financial risk, ensuring that the cost of using services does not put people at risk of financial harm.

SDG target 3.3 calls for ending the epidemics of AIDS, TB, malaria and NTDs and combatting hepatitis, waterborne diseases and other communicable diseases by 2030. At the current pace, SDG target 3.3 is unlikely to be met without substantial changes in health programmes and rapid scale-up of new technologies and tools *(3)*. Therefore, to achieve and sustain "ending the epidemics", countries will need to strengthen and further build people-centred PHC systems that deliver quality products and services. This can help to ensure that all people in need receive effective interventions along the full continuum of health services, including health promotion, prevention, testing, diagnosis and treatment, and chronic care throughout the entire life course.

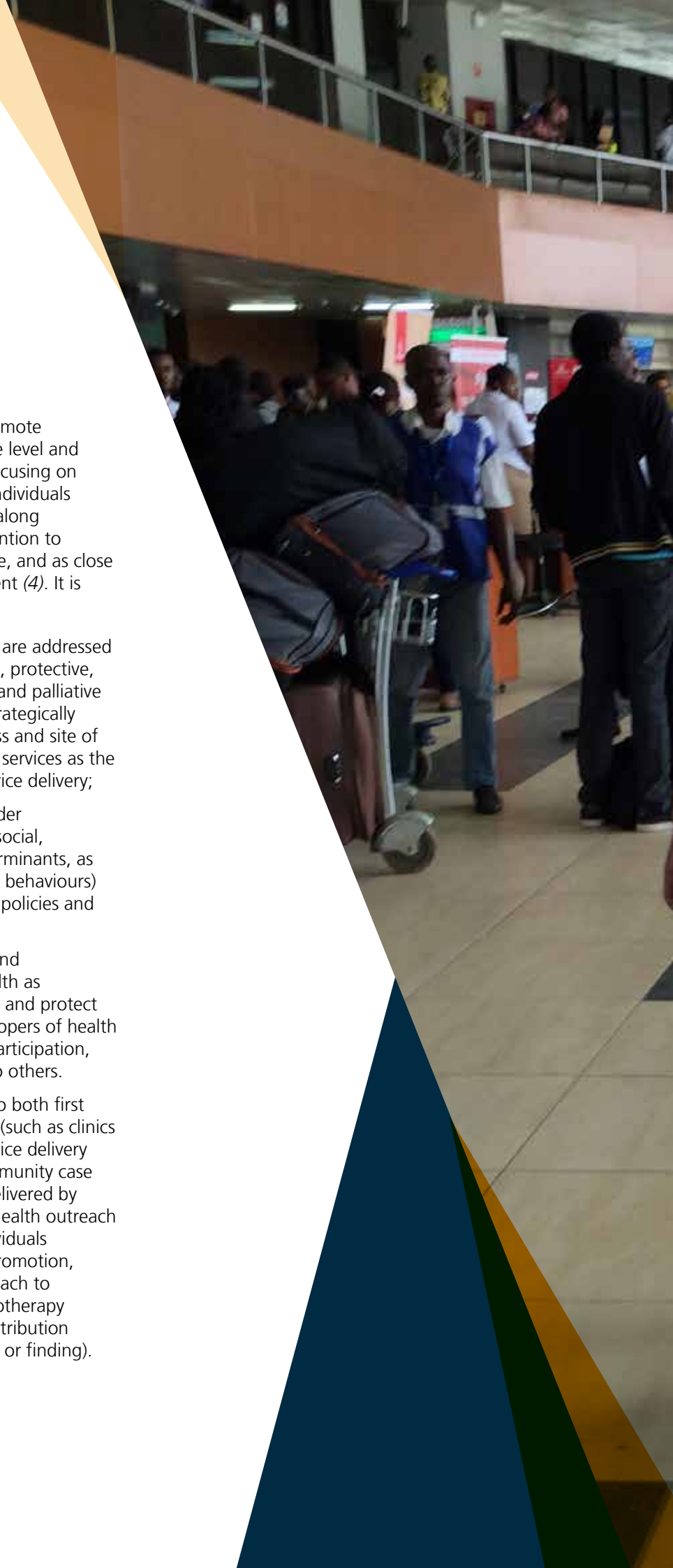
The long-term sustainability of responses to diseases addressed in SDG target 3.3 requires systemwide actions and efforts to further embed disease-specific responses into broader health programmes and systems. A resilient, well-functioning, PHC-oriented health system provides an opportunity to ensure that countries continue to prioritize responses to communicable diseases through an appropriate set of interventions that are included in health benefit packages, ensuring adequate coverage and quality to achieve the desired impact by reaching those most in need and protecting them from financial risk in accessing those services.

Primary health care definition

PHC is a whole-of-society approach to promote health that aims to equitably maximize the level and distribution of health and well-being by focusing on people's needs and preferences (both as individuals and communities) as early as appropriate along the continuum from promotion and prevention to treatment, rehabilitation and palliative care, and as close as feasible to people's everyday environment *(4)*. It is based on three components:

- ensuring people's health problems are addressed through comprehensive promotive, protective, preventive, curative, rehabilitative and palliative care throughout the life course, strategically prioritizing primary care (first access and site of continuing care) and public health services as the central elements of integrated service delivery;
- systematically addressing the broader determinants of health (including social, economic and environmental determinants, as well as people's characteristics and behaviours) through evidence-informed public policies and actions across all sectors;
- empowering individuals, families and communities to optimize their health as advocates of policies that promote and protect health and well-being, as co-developers of health and social services through their participation, and as self-carers and caregivers to others.

In this paper, primary care refers to both first access and site of continuing care (such as clinics and PHC centres), community service delivery platforms (such as integrated community case management and interventions delivered by community health workers), and health outreach and public health services for individuals and populations (such as health promotion, vaccination campaigns, peer outreach to key populations, preventive chemotherapy campaigns, mosquito net mass distribution campaigns, and active case search or finding).



Epidemiological context

High-impact communicable diseases[2] (see Table 1) currently cause an estimated 4 million deaths annually along with illness and suffering in nearly 2.1 billion people, affecting approximately 28% of the world's population *(5)*. They predominantly impact vulnerable and marginalized populations and the poorest people in lower- and middle-income countries with low access to health services. Although considerable progress has been made since 2000, many challenges remain to fill the prevention, diagnosis, testing, treatment and care gaps. For example, it is estimated that:

- 25% of people living with HIV are not aware of their status, and 15.2 million people are not yet receiving treatment *(6)*.
- 3.6 million of the estimated 10 million people who developed TB in 2017 were either not reported or not diagnosed; of those reported as registered for treatment, the latest data show a treatment success rate of 82% globally *(7)*. Only about 50% of TB patients know their HIV status, although the figure is 86% in the African Region, where the burden of HIV-associated TB is highest *(7)*.
- Only about one in four of the people who developed multidrug-resistant TB in 2017 were started on treatment in 2017; globally, the latest data show a treatment success rate of 55%, although this is higher (> 70%) in some countries with a high burden of multidrug-resistant TB *(7)*.
- 53% of febrile children in Africa were not seen by an appropriate health provider; and 46% of people at risk of malaria in sub-Saharan Africa did not sleep under an insecticide-treated mosquito net the previous night *(8)*.
- 91% of people with chronic hepatitis B virus (HBV) infection were not aware of their status, and 255 million people with chronic infections have not yet received treatment *(9)*.
- 80% of people with chronic hepatitis C virus (HCV) infection are not aware of their status; and 69 million people have not yet received treatment *(10)*.
- 500 million people that require treatment for NTDs have not yet received it *(11)*.

[2] In the context of this paper, the term "high-impact communicable diseases" refers to HIV/AIDS, TB, malaria, viral hepatitis (HBV and HCV) and neglected tropical diseases.

Table 1. High-impact communicable diseases cases and deaths

Disease	Total number of cases	Deaths
HIV (2017)	36.9 million	940 000
TB (2017)	10 million	1.3 million
Malaria (2016)	216 million	445 000
HBV (2015)	257 million	887 000
HCV (2015)	71 million	399 000
NTDs (2016)	1.5 billion[a]	
Total	**2.1 billion[b]**	**4 million**

a. People requiring NTD treatment/care.

b. Total of number of cases rather than number of people impacted, due to significant overlap of coinfections.

Sources: World Health Organization *(6–11)*.

PHC as an enabler for "ending the epidemics"

As Table 2 indicates, the vast majority of interventions required to address high-impact communicable diseases are delivered at the PHC level. In most situations PHC is the interface for health promotion, disease prevention, testing and diagnosis, treatment, and providing chronic care.

Table 2. Examples of PHC services to address high-impact communicable diseases

Continuum of communicable disease services	Examples of services delivered through PHC
Health promotion	Provision of health information or behaviour change communication for specific diseases (e.g. health-seeking behaviour, use of insecticide-treated nets) or cross-cutting issues that impact health (e.g. nutrition, indoor air pollution, water, sanitation and hygiene, tobacco or alcohol use, sexual behaviour)
Prevention	Vaccination programmes (TB, hepatitis A and B, human papillomavirus); distribution of condoms (reproductive health, prevention of sexually transmitted infections including HIV and syphilis); pre-exposure prophylaxis for people at high risk of HIV infection; prevention of mother-to-child transmission of HIV, HBV and syphilis; basic infection prevention and control for airborne diseases; systematic screening of TB contacts and TB preventive treatment; malaria intermittent preventive treatment; routine mass distribution of insecticide-treated nets and promotion of their use; seasonal malaria chemoprevention; sustainable community-based vector control interventions to prevent arboviral diseases; harm reduction (sterile needle and syringe programmes, risk reduction counselling, opioid substitution therapy, outreach to sex workers) to prevent HIV, sexually transmitted infections, HBV, HCV and TB
Testing, screening and diagnosis	Systematic risk assessment, sample processing, HIV, TB, viral hepatitis; collecting sputum samples for presumptive TB patients; TB screening among high-risk groups; use of rapid diagnostic tests for malaria; opportunistic screening for multiple conditions (e.g. cervical cancer, sexually transmitted infections, selected NTDs); surveys to assess the need for community intervention for selected NTDs
Treatment	Assessment, treatment and follow-up of all high-impact communicable diseases to ensure treatment retention and adherence (e.g. HIV, viral hepatitis, TB, malaria, selected NTDs); preventive chemotherapy intervention for some NTDs; prevention and treatment of comorbidities and other conditions (e.g. malnutrition, pneumonia, diarrhoea, sexually transmitted infections)
Chronic care	Chronic care for people living with HIV; treatment for liver cancer and cirrhosis of the liver related to chronic hepatitis infections; treatment for cervical cancer and care for people with long-term consequences of NTD infections (e.g. Chagas disease, leprosy, filariasis, chikungunya, schistosomiasis and trachoma); palliative and end-of-life care

Opportunities and challenges for addressing high-impact communicable diseases through PHC

Four policy areas highlighted below offer opportunities and challenges to effectively address high-impact communicable disease through PHC:

- leadership, equity and financing;
- effective, people-centred, integrated quality services across the health care continuum and life cycle, and strategic information to achieve impact;
- multisectoral collaboration and actions with health addressed in all policies;
- innovation and research to accelerate response.


SILENCIO
POR FAVOR
BUZON
EXAMTEX
SMALL
EXAMTEX

Leadership, equity and financing

Health as a priority, commitment to achieve targets

The MDGs demonstrated that global, national and community leadership and commitment to recognize and achieve internationally agreed targets are key factors for addressing high-impact communicable diseases. Countries such as Ethiopia (see Box 1) and Rwanda fully committed to expand PHC through community health service delivery platforms to increase access to essential health services at low cost. This commitment led both countries to achieve at least a 67% reduction (MDG 4) in under-5 mortality during the period 1990–2015. Pneumonia, diarrhoea and malaria are principal drivers of under-5 mortality, which is also exacerbated by malnutrition *(12)*; all of these conditions are addressed through PHC. Under-5 mortality is also addressed through the integrated delivery of key interventions for TB and HIV at the PHC level in maternal and child health service delivery. Of the 62 countries that achieved MDG 4, 12 were classified as low-income and 10 were from sub-Saharan Africa. These countries demonstrated that political will, long-term focus and effective health spending could leverage scarce resources to achieve dramatic results *(13)*. Rwanda also made great progress against MDG 5 (reduce maternal mortality rates) and MDG 6 (combat HIV/AIDS, malaria and other diseases), achieving a 76% reduction in AIDS-related deaths, a 75% reduction in malaria incidence, and more than 50% reductions in TB prevalence, incidence and death rate *(14)*. The country also provided full coverage with preventive chemotherapy for children in areas endemic for schistosomiasis and soil-transmitted helminthiasis, eliminating the morbidity due to these conditions.

The ability to provide timely malaria treatment is a key factor in reducing malaria mortality. Rwanda's commitment to improve access to health services through community health workers has made it possible to treat 91% of children aged under 5 years for malaria within 24 hours, substantially reducing mortality *(15)*. Zambia and Zanzibar (United Republic of Tanzania), both lower-income countries with high malaria burdens, have already met 2020 SDG targets to reduce malaria deaths by 40% because they have prioritized their response to malaria and committed their own resources to complement external donor funding *(8)*.

Egypt and Georgia have already committed to treat all people living with chronic HCV infection with major expansion in the provision of curative treatment. Expansion of HBV vaccination programmes in such countries as China makes the goal of achieving an HBV-free generation feasible. Eliminating an NTD requires commitment to address diseases of the poor. In 2016, Cambodia eliminated lymphatic filariasis; Guatemala eliminated onchocerciasis; and Morocco eliminated trachoma *(1)*.

Achieving elimination will require commitment to achieving SDG target 3.3 and related indicators; prioritization of resource allocation to the health sector and especially PHC; communicable disease strategies that are fully integrated into national health programmes; and an unwavering commitment to reach all key, vulnerable and marginalized populations that are disproportionately affected and face challenges in accessing health services. This will require strong leadership and high-level advocacy to overcome stigma, discrimination and other barriers that prevent access to essential health services.

Equity

To achieve SDG target 3.3, *all* populations affected and at risk will need to be reached. Focusing efforts on those locations and settings where burden is greatest, incidence is highest, and access to care is low will have the greatest impact. Investments need to be made in interventions and delivery strategies that achieve greatest impact. Decentralization of service delivery will be required to achieve equity. PHC is key to reaching remote and marginalized populations (Box 1). PHC not only improves access to services for communities but is also critical for improving the quality of care patients receive, for example by improving antiretroviral therapy (ART), TB and HBV treatment adherence *(16)* and community engagement.

Box 1. Ethiopia expands access to health services

In many countries, community service platforms and the community health workers that provide health services are not considered to be part of the formal health sector. These systems are often funded through development partners and implemented by non-State actors. Over the years, Ethiopia has developed a national network of 38 000 health extension workers (HEWs), voluntary community health workers and community health promoters. The HEWs are formally part of the health system and receive training and a salary from the government. HEWs are expected to divide their time between health posts and outreach activities in the communities. The principle roles of HEWs are health promotion, disease prevention and treatment of non-severe illnesses, including malaria, pneumonia, diarrhoea and malnutrition.

Ethiopia's national leadership and commitment to expanding access to PHC services through community systems service platforms has led to some of the steepest declines in under-5 mortality and maternal mortality on the African continent *(17, 18)*. Between 2000 and 2013, Ethiopia also achieved a 55% reduction in HIV-related deaths, a 70% reduction in the number of people living with HIV, a 51% reduction in the TB prevalence rate and a 68% reduction in the TB death rate *(19)*. These gains were possible because the government prioritized and funded the development and expansion of a nationwide community health worker programme that reached 90% of the population by 2010 *(20)*.

In some cases, new facilities and service delivery mechanisms will be required to improve access. Additional efforts could be made to create mobile service delivery mechanisms bringing multiple health services to remote communities or providing regular, low-cost, reliable transport to existing health facilities. Other innovative solutions may also be available, such as telemedicine or using combinations of established media (radio, television) with text messages as reminders to share health information and conduct health promotion *(21, 22)*.

Achieving equitable coverage of services is not only an ethical imperative but also constitutes good public health practice (Box 2). If these populations are not reached efficiently by effective interventions then the high-impact communicable disease epidemics will never be controlled, with the risk of resurgence among the entire population.

In many countries epidemics are concentrated in specific locations and among key populations at increased risk, and disproportionately affect marginalized and vulnerable groups. For example, men who have sex with men and people who inject drugs have 28 and 22 times the risk respectively of acquiring HIV *(23)*. People who inject drugs are also much more likely to be infected with HBV and HCV *(9, 10)*. The NTDs are defined on the basis of the disproportionate burden that they place on the poorest, remotest and otherwise most marginalized communities *(24)*. The gender of the health service provider can also create barriers to accessing services. For example, women may be reluctant to let a male health care worker into their home or there may be religious restrictions on the mixing of sexes. To overcome this barrier, Afghanistan and Rwanda place both male and female community health workers at each health post *(17)*.

Box 2. Improving equity in the Islamic Republic of Iran

In the Islamic Republic of Iran, 90% of health services are provided in the public sector. At the time of the first Alma-Ata Conference in 1978 there were significant differences between urban and rural districts in the country in terms of health indicators. The infant mortality rate in rural areas was more than double that in urban areas. To address this inequity, the Islamic Republic of Iran developed a village health worker (VHW) programme in the early 1980s, which eventually expanded to include 30 000 VHWs. The VHWs, who are recruited from local villages, participate in a two-year training programme and receive a salary. The VHWs focus on the health needs of the rural populations to specifically address infant mortality, maternal mortality and childhood illnesses such as diarrhoea. The roles of the VHWs have changed over time to better meet the needs of the local populations, adding expertise in oral health, elderly health, social determinants of health and well-being, human rights, and cultural beliefs. After 20 years of operation the VHW system has largely been credited with significant improvements in overall health and equity. In 2000, the infant mortality rate in urban and rural areas had been reduced by 54% and 75% respectively, resulting in infant mortality rates that were nearly identical in rural and urban areas *(17)*.

Other factors that hamper access to services include punitive laws and policies. For example, criminalization of certain behaviours, populations and infection transmission pathways generate stigma and discrimination. These must also be identified and addressed by promoting inclusion and acceptance, creating legal frameworks that protect key and vulnerable populations, and developing services that overcome these barriers. The concept of Health in All Policies needs to be implemented to ensure that policies do not lead to unintended health consequences, for example drug control policies and strategies that lead to increased HIV, HBV or HCV transmission.

Financing

Around 800 million people are spending at least 10% of their household budget on out-of-pocket health care expenses and nearly 100 million people are being pushed into extreme poverty each year because of paying for health care *(25)*. The costs for effective interventions for high-impact communicable diseases can be high, and are in many cases beyond the ability to pay of affected individuals. HIV and HBV, for example, require treatment for life, and there continue to be major differences in the prices of medicines and diagnostics across countries. Treatments for multidrug-resistant and extensively drug-resistant TB are far more expensive and require significantly longer courses than those for drug-susceptible TB *(26)*. Severe illnesses, such as cerebral malaria, require costly inpatient services, blood transfusions and more expensive parenteral treatments *(27)*. Additionally, there are opportunity costs of losing wages while someone is sick or caring for others; long-term developmental costs of not being in school due to illness; or permanent developmental deficits due to repeated illnesses or chronic parasitic infections (for example, with soil-transmitted helminths or *Schistosoma* spp.) *(28)*.

Financing for a sustainable response requires three elements: revenue raising and the fair allocation of resources, financial risk protection, and pooling and reducing costs (including through greater service efficiencies and price reduction strategies for medicines and other health commodities, for example through addressing intellectual property barriers). The system for financing high-impact communicable disease responses will need to support those who are least able to pay, for example by providing services free of charge at the point of care or by free distribution of preventive chemotherapy interventions. Key and marginalized populations will need to be covered by safety nets such as public health insurance.

Protecting people from communicable diseases benefits the population at large and helps to justify public investment. Additionally, expenditures on effective high-impact communicable disease interventions are often very cost-efficient due to the realization of economies of scale, with long-term economic and social benefits significantly outweighing initial investments. This is particularly true for preventive interventions, and applies to countries across the income spectrum *(29, 30)*. For example, studies on HIV prevention, HBV vaccination, and needle and syringe programmes (and other harm reduction measures) in high-income countries *(30)*; on use of long-lasting insecticide-treated nets to prevent malaria *(31)*; and on mass provision of preventive chemotherapy to treat soil-transmitted helminthiasis *(32)* have all shown positive returns on investment or benefit–cost ratios, indicating that the estimated monetary or health benefits to society are all greater than the initial costs of the intervention.

Expanding primary care has been demonstrated to be a low-cost strategy for improving health in countries of all income levels that warrants prioritization and adequate funding. Primary care service providers need to be fairly compensated and included as employees; this is especially true at the community level *(33)*. A recent literature review suggests that compared with standard care, using community health workers in health programmes can be a cost-effective intervention in lower middle-income countries, especially for TB, and for other areas such as malaria and reproductive, maternal, newborn and child health *(34)*. In middle- and high-income countries, studies have also shown that primary care interventions such as HIV and HCV screening, HBV vaccination, anti-stigma social marketing campaigns, and harm reduction have high returns on initial investment or positive benefit–cost ratios *(30, 35, 36)*.

Investments to address high-impact communicable diseases also contribute to building and strengthening health systems (for example, by strengthening laboratory services, procurement and supply chain management systems, health management information systems, monitoring and evaluation systems, engagement of communities, deployment and training of community health care workers, training of clinical staff, and development of health facilities); strengthening linkages to other sectors (for example, vector control, water, sanitation and hygiene, education, agriculture and veterinary services, rural development, and housing); and promoting broader human rights and economic development, particularly for marginalized and vulnerable populations. Lessons learned in successfully combating high-impact communicable diseases can also be applied to expanding and strengthening PHC.


Sribi Ondro Wan Klamboe!
Durma Embaixo De Um Mosquiteiro!

Effective, people-centred, integrated services across the health care continuum and life cycle

Effective interventions

Countries will achieve greatest impact if they invest in interventions and services that are evidence-based, quality assured, and targeted to the populations in greatest need. A key element of effective PHC services in a country is the definition of a health benefit package that outlines those services that will be provided and funded through national health programmes. It is critical that high-impact communicable disease interventions along the full health service continuum (health promotion, prevention, screening, testing and diagnosis, through to treatment and chronic care) are integrated into such health benefit packages. Health benefit packages should be differentiated to meet the needs of targeted populations and may vary according to the local situation (for example, geographic areas that are not malaria endemic will not need mosquito nets). Effective interventions need to be supported by appropriate enabling interventions. This includes sustainable community-based vector control interventions to prevent arboviral diseases (such as dengue and chikungunya). Antimicrobial resistance is an example of a complex medical challenge that arises when the enabling interventions are not sufficient (for example due to lack of infection control in hospitals or use of substandard medicines) or health services are of poor quality or incomplete (for example due to inadequate quality of clinical practices, failure to ensure treatment adherence, or stock-outs of essential drugs for TB or HIV that cause interruptions in treatment) *(37)*.

The cost-effectiveness, safety, acceptability and feasibility of new interventions need to be demonstrated if they are to be included in benefit packages. There are opportunities to prioritize services that impact across different communicable disease areas. Also, a strategy of progressive realization can be adopted, with the scope and coverage (population and geographic) of effective interventions and services expanded as more resources, capacities and technologies become available. In many countries, community health service delivery platforms have progressively expanded both the high-impact interventions they provide and the geographic area they cover, thus providing access to more of the population *(17)*. For example, Rwanda used platforms designed to scale up HIV interventions to strengthen PHC and expand PHC services by adding integrated community case management (to address pneumonia, diarrhoea, malaria and malnutrition) and family planning nationwide *(38, 39)*.

People-centred integrated services

Effective PHC requires people-centred health services, in which services are organized around the needs of people (across the life course) and communities rather than specific health issues. Integrated service delivery models that strategically prioritize primary care and public health services to ensure that care is delivered efficiently, cost-effectively and as close to people as possible provide opportunities to reach the most vulnerable and marginalized populations and to achieve health equity. People often experience multiple health problems simultaneously, including coinfections (such as TB and HIV; HIV and other sexually transmitted infections; HIV and NTDs; and malnutrition and TB or HIV) and other comorbidities (such as malnutrition, mental health disorders including substance abuse, and noncommunicable diseases including diabetes and cancers). By adopting a whole-person focus, comprehensive care and generalist primary care services can address the broad health needs of the people they serve. Just as health benefit packages define the types of interventions and services to be delivered, people-centred services provide direction as to how different interventions and services can be delivered most efficiently, effectively and equitably through an integrated approach. Many high-impact communicable diseases are strongly associated with poverty, stigma and discrimination. People-centred health services should also address such non-health needs through strong service coordination with social protection, and community-based care and support.

Many communities or population groups will share overlapping and interrelated risks (see Table 3). For example, people who use injectable drugs, prisoners and sex workers may be at simultaneously higher risk for HIV, HBV, HCV, TB and other comorbidities, such as malnutrition, mental health disorders, cancers and drug dependence. Children under 5 with malaria may also be suffering from pneumonia, diarrhoea, NTDs and malnutrition. In settings with a high TB burden, TB is a frequent cause of comorbidity in children presenting with malnutrition or signs of pneumonia.

People-centred health services, particularly at primary care and public health service levels, could be developed to serve:

- key or vulnerable populations (for example, sex workers, people who inject drugs, prisoners, migrants, rural workers, truck drivers, pregnant women, children under 5, neglected or underserved communities);
- life cycle stages (for example, infants, children under 5, adolescent girls, pregnant women, young men, adults and seniors);
- integrated service delivery platforms (for example, community health service delivery platform (rural versus urban), integrated community case management, integrated management of childhood illness, community-directed distributors, health posts, antenatal clinics, immunization services, reproductive health, and harm reduction) *(39)*.

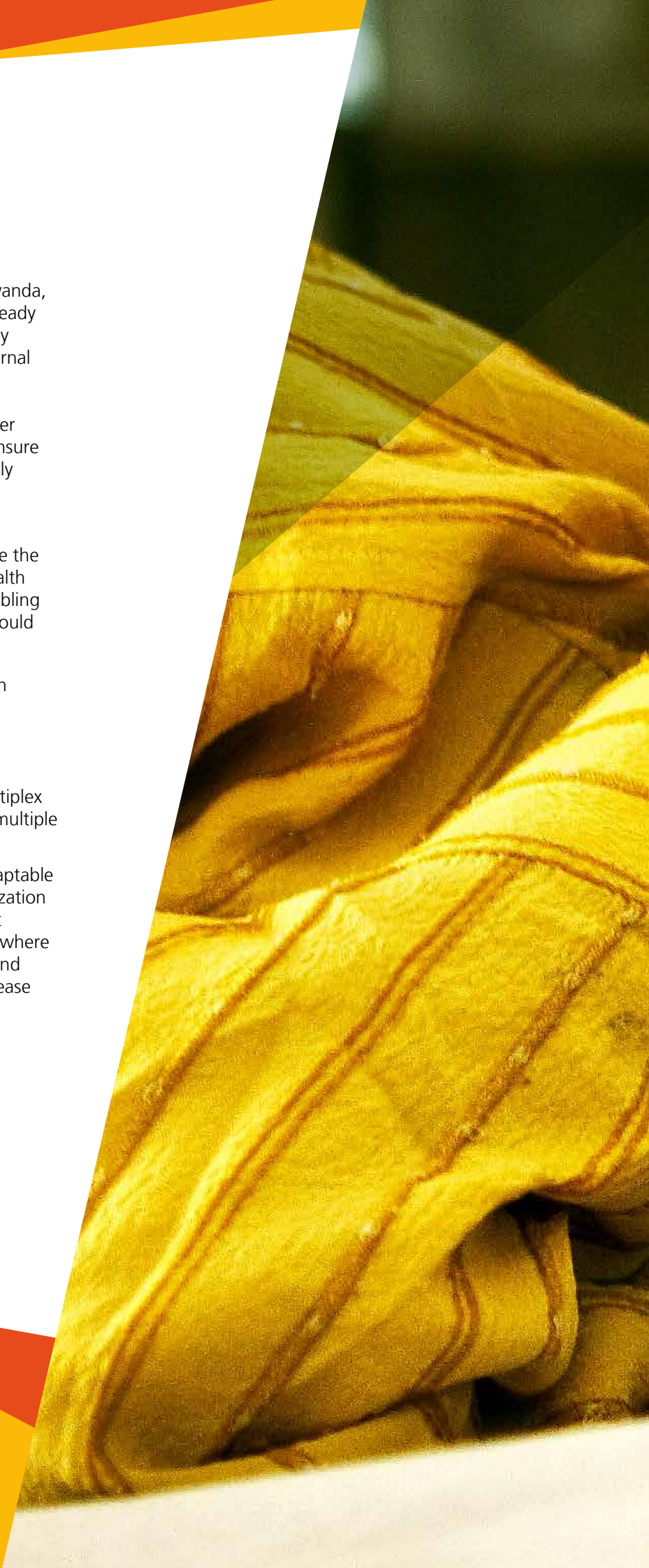
Table 3. Examples of different service integration approaches

Service delivery approach	Examples of people-centred service integration
Sex workers, people who inject drugs, prisoners, transgender people, men who have sex with men	Screening and testing for HIV, HBV, HCV, TB, treatment for drug dependence, screening for mental illness, screening for ovarian cancer, harm reduction interventions, provision of condoms, sterile syringes, syringe safety boxes
Truck drivers, migrants	Screening for HIV, TB, malaria, tobacco counselling, distribution of condoms, mosquito nets
Children under 5	Vaccination, screening and treatment for malaria, pneumonia, diarrhoea, malnutrition, preventive chemotherapy for selected NTDs, screening and diagnosis of HIV, TB, HBV, household contact screening and TB preventive therapy, distribution of mosquito nets, screening for physical or sexual abuse
Adolescent girls	Reproductive health services, human papillomavirus vaccination, prevention and treatment of HIV and other sexually transmitted infections, preventive chemotherapy for selected NTDs
Antenatal care clinics	Testing and treating HIV, TB, HBV, syphilis and other sexually transmitted infections (elimination of mother-to-child transmission), distribution of mosquito nets, testing and intermittent preventive treatment for malaria, micronutrient screening and supplementation (iron, vitamin B12, folic acid), treatment for some NTDs and other maladies, screening for domestic violence, screening for drug or alcohol abuse
Integrated skin NTDs	Screening populations for skin NTDs (Buruli ulcer, cutaneous leishmaniasis, leprosy, mycetoma, scabies, onchocerciasis, fungal infections, yaws) and other conditions by community health workers for early detection, treatment or referral
Vaccination campaigns, clinics	Distribution of mosquito nets, seasonal malaria chemoprevention in areas with highly seasonal transmission, micronutrient supplementation, preventive chemotherapy for select NTDs (e.g. soil-transmitted helminthiasis, schistosomiasis), early detection of communicable diseases, screening for physical abuse

A review of the terms of reference for community health workers from several countries (Afghanistan, Bangladesh, Rwanda, Zambia, Zimbabwe) shows that PHC already offers a range of services covering family planning and reproductive health, maternal and child health, environmental health, communicable and noncommunicable diseases, responding to injuries and other services *(17)*. The challenge will be to ensure that integrated services can be effectively delivered by adequately trained and compensated staff.

Integrated approaches may also increase the efficiency and responsiveness of the health system, especially if supporting and enabling interventions are strengthened. These could include:

- Health management information systems;
- Procurement and supply chain management;
- Laboratory services (such as multiplex assay platforms for diagnosing multiple communicable diseases); and
- Human resources (a flexible, adaptable workforce with skills mix optimization and clear role definition to meet patient health needs in settings where there are shortages of doctors and nurses, or to lower costs or increase the efficiency of services).




Mantenga esta ventana abierta
Detenga la transmisión
de la tuberculosis
BOILERMAKERS

Quality of services

Quality includes aspects of patient safety (avoiding injuries or infections to people for whom care is intended); effectiveness (the degree to which evidence-based interventions or strategies achieve desirable outcomes); people-centeredness (providing care that responds to individual preferences, needs and values); and integration (care that makes available the full range of health services across the health care continuum, throughout the health system, and according to people's needs throughout the life course) *(25)*.

Factors that negatively impact quality of care need to be identified and ameliorated. Some examples include non-adherence to or lack of knowledge of diagnostic algorithms by health workers; poor treatment adherence by clients; health workers lacking communication skills or bedside manners; use of poor-quality medicines; weak patient monitoring and follow-up of patients; not providing or not using available preventive measures (long-lasting insecticide-treated nets, pre-exposure prophylaxis, TB preventive therapy); not maximizing opportunities to screen and provide treatment for other diseases at critical service points (not testing people living with HIV for TB, or not screening for HIV, HBV, syphilis and cervical cancer at the antenatal care clinic); lack of availability and use of quality diagnostic services; poorly trained staff; lack of data on performance at point of care delivery; lack of quality improvement culture and processes; stock-outs or unavailability of essential medicines; and policies that create access barriers to services, for example by perversely incentivizing or failing to address discrimination or stigma.

In countries with severe health care staff shortages (especially of doctors and nurses), studies have shown that skills mix optimization and role definition help to free up the time of more skilled health workers by using less-qualified staff (community health workers, volunteers, teachers) to perform simpler interventions. In some cases, this can also make the services more acceptable to specific populations. This applies to countries at all income levels. A study from Bangladesh showed that well-trained community health workers performed as well as physicians in implementing a childhood pneumonia management protocol *(40)*. The quality of care for TB, especially treatment adherence, is important in curing active TB disease, reducing TB transmission and preventing drug resistance. Another study conducted in Bangladesh showed that areas where community health workers provided community-based TB screening followed by patient support for treatment had 50% less TB prevalence than in similar areas where there were no community health workers *(41)*. Thus the quality of the treatment and the patient support led to reduced TB transmission in the areas served by community health workers. Ensuring ART treatment adherence for people living with HIV is more likely to achieve viral suppression resulting in reduced HIV transmission risk *(42)*. Boxes 3 and 4 provide some examples of how the quality of health service interventions can be improved through PHC community outreach and community health groups.

Access to quality medicines and products is critical. Drug regulatory authorities should ensure that they procure only appropriate quality products, for example World Health Organization (WHO) prequalified medicines and medical products, and that effective systems are in place to assure the quality of health-related commodities and to monitor for treatment failure, drug resistance and toxicity. Suitable transport processes and storage facilities and conditions are also required to protect the integrity of products.

Box 3. Quality of care: increasing the use of mosquito nets through mass media and text messaging

Access to insecticide-treated mosquito nets does not ensure their use. There are many reasons people do not use mosquito nets, including perceptions that they are too hot or are not needed, or they may be difficult to hang up. Different strategies have been used to improve the use of mosquito nets with varying results. In 2011, to correspond with a mass distribution campaign of free long-lasting insecticide-treated nets, a national communications campaign KO Palu ("knock out malaria") was launched in Cameroon to increase the use of long-lasting insecticide-treated nets. The campaign used a combination of mass media (including public service announcements by celebrities, a KO Palu anthem and press conferences), distribution of printed materials at special events, and nightly text messages to net recipients with mobile telephones reminding them to sleep under their nets. After the communications campaign ended, a survey found that the use of long-lasting insecticide-treated nets the previous night had increased overall by nearly 22% and for children under 5 by 24% *(22)*.

Box 4. Quality of care: community mechanisms to improve ART adherence

In Tete province, Mozambique, many people living with HIV receiving ART were lost to follow-up or dying. To address the high rate of ART attrition and HIV-related deaths, community ART groups (CAGs) were formed. CAGs are small community peer groups where members meet monthly to discuss their health and treatment status and travel plans. Each member takes turns to go to the health clinic on a monthly basis to collect monthly ART refills for the entire group. The CAG member meets with a health worker to discuss the health status of each member. The health worker records the information on a group monitoring card. Members of CAGs had more than fivefold lower rates of ART attrition than non-CAG members. CAG members also reported other time- and cost-saving benefits and reduced stigma due to less-frequent visits to the clinic *(16)*.

Strategic information to achieve impact

There is a need to better understand rapidly changing disease epidemics, social and political contexts that influence epidemic dynamics, and the evolving public health and development architecture and priorities. Effective strategic information systems are needed to identify those populations most impacted, behaviours and contexts that put populations at greatest risk, and locations most affected, in order to inform more tailored, efficient and equitable responses (Box 5). Strong health information systems, with disaggregated data (by age, sex and location) as well as interoperability features, are critical to guide health and development investments, to effectively respond to changing epidemics and contexts, and to ensure accountability across all stakeholders. Building such information systems is key to creating strong health systems that can inform the most efficient and fair allocation of resources to achieve greatest impact, especially as countries move towards elimination of specific communicable diseases.

Strong, integrated national health information systems enable countries to deliver timely data, which then enable national health programmes to better understand the health situation and to plan and implement appropriate response efforts. Electronic systems with case- or patient-based data and common digital platforms should become the norm.

Strategic information is needed to make decisions at all levels but has the greatest importance and potential impact at the community level. HIV programmes have had success in improving the collection and use of strategic information at the community level by partnering with community-based organizations and other entities and helping to reduce stigma, which often impedes the collection of critical data *(16)*. Having local information on who needs treatment for HIV and TB will facilitate follow-up with patients and positively impact treatment adherence.

Box 5. Use of local strategic information to better address health needs in Zambia

In Zambia, community health workers have the responsibility of conducting a basic health assessment of their community and mapping their service catchment area to identify the health priorities of the population to be served *(17)*. For example, they will identify people who are receiving treatment for TB and require ART for HIV. This information is supplemented by regular reports by community health workers on the health issues they have addressed in their catchment areas. These reports are normally incorporated into the national health management information systems, providing local actionable data, which helps PHC to better tailor the health response to local needs. In Zambia, community health workers are also tasked with identifying and immediately informing health authorities of disease outbreaks and notifiable diseases *(17)*.

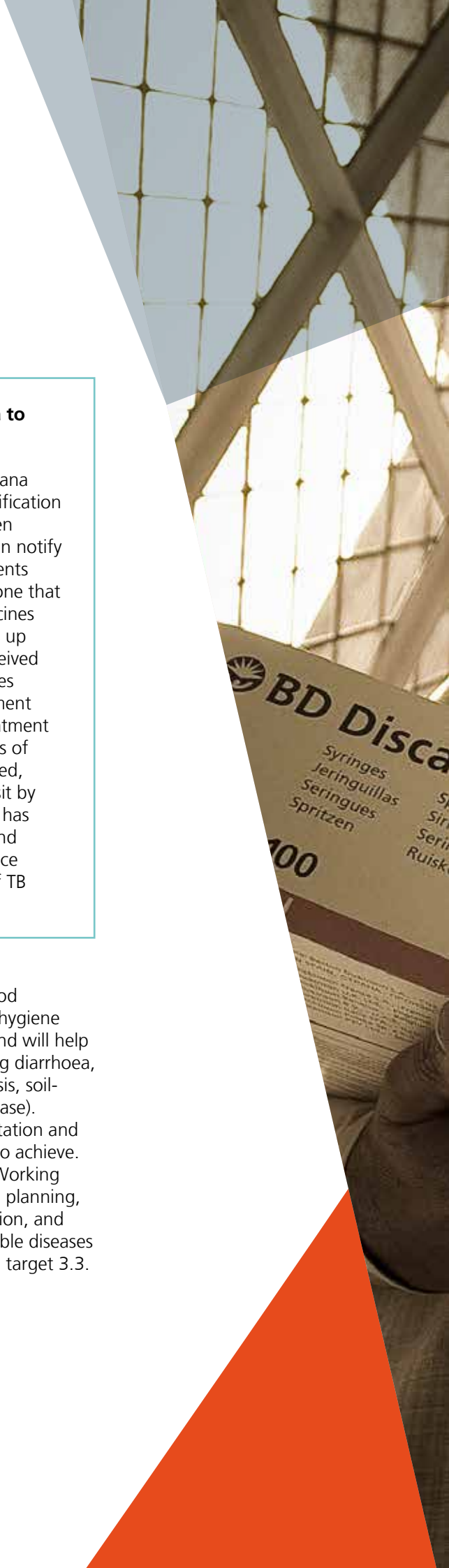
Undertaking a cascade analysis to review weaknesses in the continuum of high-impact communicable disease interventions can be helpful to identify where interventions are failing to achieve the desired results because they are not effectively reaching specific populations (for example, sex workers, people who inject drugs, men who have sex with men, migrants, indigenous communities, prisoners or pregnant women), geographic regions, or socioeconomic strata (for example, the lowest income groups). Continuing high incidence or prevalence of high-impact communicable diseases may also demonstrate major failings in prevention programmes that need to be addressed.

Malawi was one of 10 sub-Saharan African countries to achieve at least a 67% reduction in under-5 mortality over the period 1990–2015 (MDG 4). Part of that success was attributed to using locally acquired evidence to adopt and roll out effective interventions. The country staff used Ministry of Health data to identify which interventions had been deployed, where, and to what extent. Data on interventions were then analysed using the Lives Saved Tool (LiST) created by the United Nations Children's Fund (UNICEF) to determine which interventions had the most impact on reducing mortality. This analysis was then used to guide the scale-up and use of different interventions throughout the country *(43)*.

Multisectoral collaboration and cross-sectoral actions with health addressed in all policies

Achieving SDG target 3.3 requires not only better integration of health services but also concurrent efforts to work across non-health sectors such as agriculture, animal health, urban planning, water and sanitation, education, housing, drug policy, justice, climate adaptation and other sectors impacting the transmission of communicable diseases. The SDGs recognize the importance of cross-sectoral coordination and the strategy of including health in all developmental policies, as shown in the following examples.

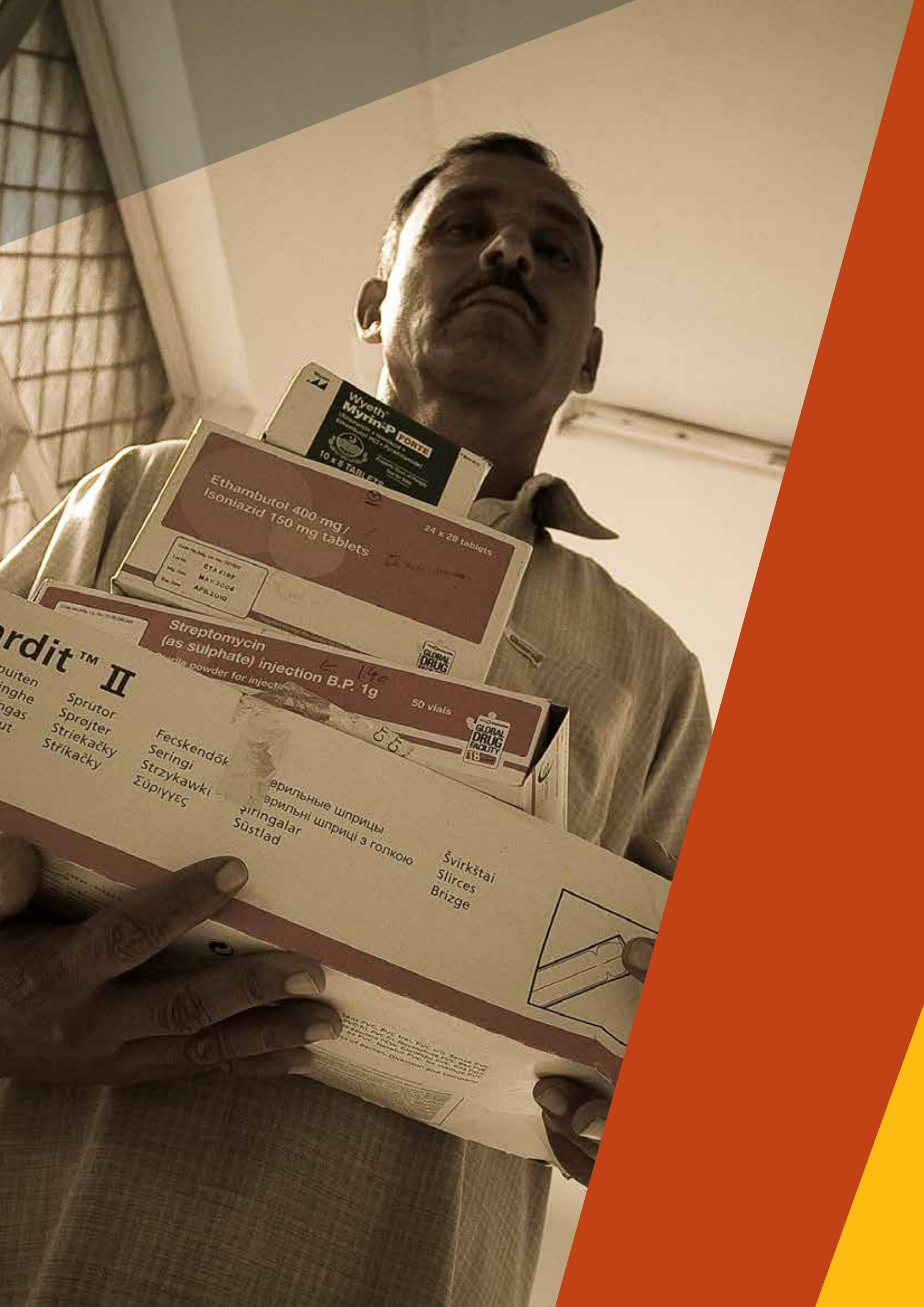
- SDG 1 (no poverty) calls for the elimination of poverty: the poor are more susceptible to communicable diseases.
- SDG 2 (zero hunger) calls for ending hunger: nutrition is a key issue for susceptibility and resistance to communicable diseases.
- SDG 4 (quality education) recognizes the need to empower people with knowledge (maternal education is particularly important for improved health, and education during childhood and adolescence promotes adoption of healthier behaviours) to enable them to make key health decisions and strengthen people-centred care.
- SDG 5 (gender equality) aims to reduce gender inequities, thus improving access to essential health services.
- SDG 7 (affordable and clean energy) can help to reduce indoor air pollution, which facilitates the transmission of respiratory tract infections, TB and pneumonia.
- SDG 11 (sustainable cities and communities): sustainable city and community designs are needed to improve housing and work conditions that lead to TB transmission, and improve community waste and wastewater management practices to reduce the transmission of viral hepatitis and combat vector-borne diseases (such as dengue, Zika virus, West Nile virus) and food and waterborne diseases.
- SDG 16 (peace, justice and strong institutions): peace will enable more of the population to be reached with essential health services, justice helps to ensure that punitive laws and policies that lead to discrimination are identified and addressed and that government is held accountable for implementing health programmes that serve those being left behind, and strong institutions enable effective implementation of health policies and strategies.
- SDG 17 (partnerships for the goals): the goals are too broad and challenging for any one partner or entity to achieve; attaining the SDGs will require coordination of efforts and collaboration with all partners, especially the private sector (Box 6).



Box 6. Public–private partnership in India to improve notification of TB cases

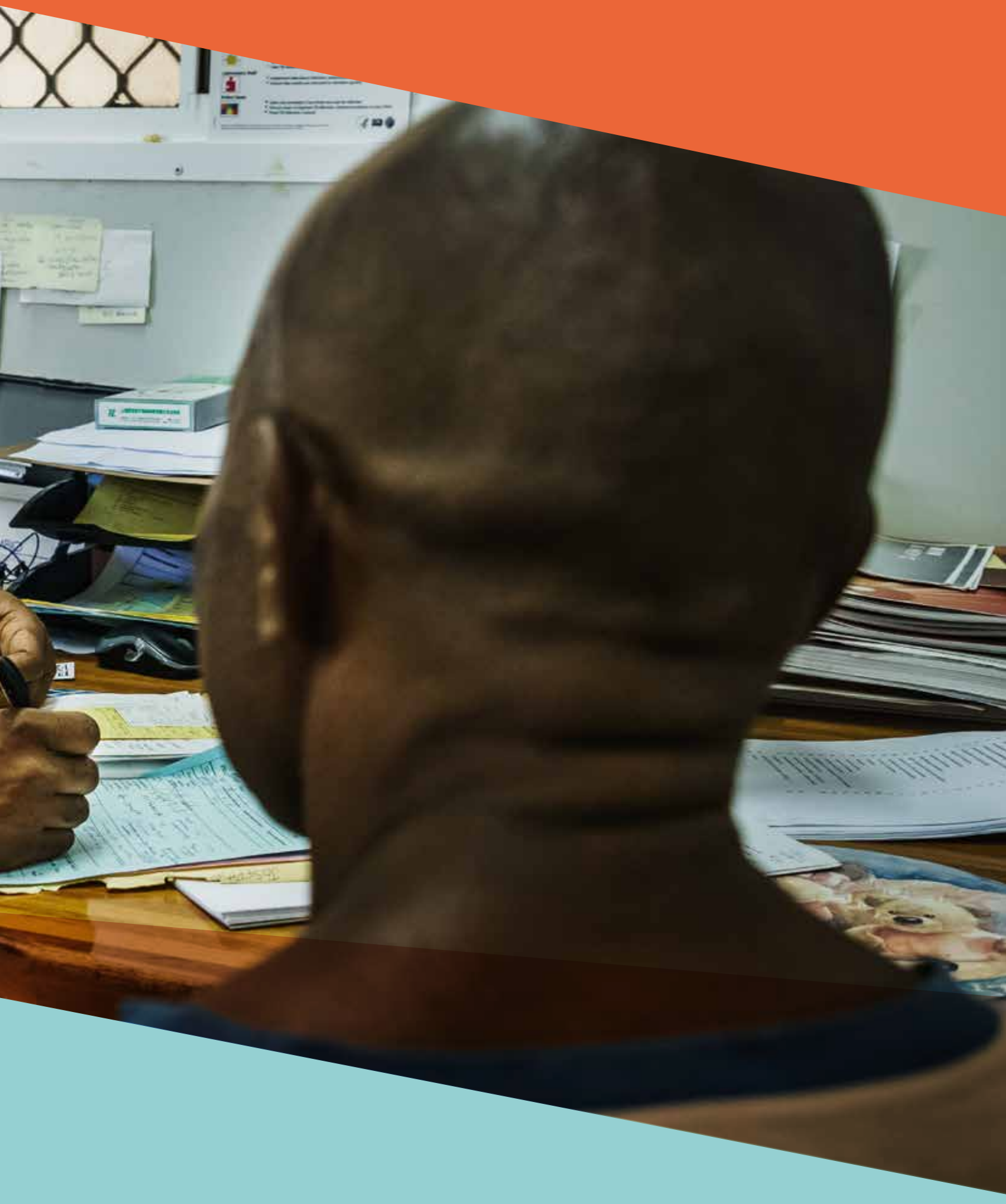
In India, a public–private partnership in Mehsana district is using text messages to improve notification of TB cases treated in the private sector. When private sector doctors detect TB cases they can notify a call centre through a toll-free number. Patients then receive an evoucher on their mobile phone that allows them to receive free first-line TB medicines at the pharmacy. The call centre then follows up with the patient to ensure that they have received their treatment free of charge. The pharmacies then receive compensation from the government for the treatment provided. The patient's treatment adherence is prompted by an escalating series of reminders, alerts, self-reporting and, if required, through contacting family members and a visit by programme staff. After one year, this system has resulted in a tripling of TB case notification and for the first time provided treatment adherence monitoring and support to a large number of TB patients treated in the private sector *(21)*.

Access to safe water, effective sanitation and good hygiene practices through water, sanitation and hygiene interventions is a major determinant for health and will help to reduce many communicable diseases (including diarrhoea, typhoid, cholera, hepatitis A and E, schistosomiasis, soil-transmitted helminthiasis, and guinea-worm disease). Without investments and scale-up of water, sanitation and hygiene interventions, SDG 3 will be impossible to achieve. This is true for many of the other SDGs as well. Working across sectors – agriculture, animal health, urban planning, water and sanitation, education, climate adaptation, and others impacting the transmission of communicable diseases – is essential for progress towards achieving SDG target 3.3.


Wyeth
Myrin-P FORTE
10 x 6 TABLETS
Ethambutol 400 mg /
Isoniazid 150 mg tablets
24 x 28 tablets
Streptomycin
(as sulphate) injection B.P. 1g
50 vials
GLOBAL DRUG FACILITY
rdit™ II
Sprutor
Sprøjter
Stříkačky
Fecskendők
Seringi
Strzykawki
Σύριγγες
Švirkštai
Šlirces
Brizge
Süstlad

Innovation and research

To achieve the SDG 3.3 target to end the epidemics of high-impact communicable disease by 2030, there is a need to identify and develop better tools (such as, vaccines, effective drugs, diagnostic tests) as well as models of service delivery to better reach underserved and marginalized populations (those being "left behind"), including through improving the implementation of existing interventions and sustainable financing models. As new tools and interventions are developed, countries should have policies to promote the rapid translation of innovation into country strategies and actions to achieve timely impact. For example, when WHO recommends new treatment protocols or point-of-care diagnostics, rapid uptake and implementation of new recommendations can improve the ability to address the high-impact communicable disease epidemics with better results. For example, in 2018 WHO recommended a new oral treatment protocol for treating multidrug-resistant TB, which is more effective, has fewer side-effects, and will reduce the further spread of drug-resistant TB strains by improving treatment adherence *(44)*.



Since high-impact communicable diseases affect multiple sectors, the social environment has an important effect on individual and community behaviour. It is therefore critical to design health programmes that empower individuals and the entire community to take action. Box 7 describes an innovative approach used to empower individuals and communities to improve responses to the AIDS and malaria epidemics *(45)*.

Box 7. AIDS Competence Programme: innovation in community empowerment

One of the key factors leading to successful HIV/AIDS treatment and awareness outcomes is individual and community empowerment. Initiated in 2003/2004 in the Mekong region, the AIDS Competence Programme provided an innovative and scalable approach to empowering communities and individuals to combat the HIV/AIDS epidemic. The competence programme uses a community self-assessment framework to define community needs and strengths in different areas. Community needs include HIV/AIDS acknowledgement, care and prevention, access to treatment, inclusion, identifying and addressing vulnerability, learning, measuring change, adapting responses, ways of working and resource mobilization. Communities map out their strengths and resources in each area using a river diagram and update changes over time. The diagrams are meant to be shared between communities to increase peer-to-peer learning and sharing of good practices. The competence programme is scalable, with trained facilitators used to conduct workshops for training of trainers. Outcomes two years after the start of the AIDS Competence Programme in seven communities in north-eastern Thailand demonstrated considerable improvement in knowledge and acknowledgement of HIV/AIDS; positive attitudes towards people living with HIV/AIDS; women's participation in AIDS-related work; resource mobilization; identification and addressing of risks and vulnerabilities; and availability of treatment for people living with HIV/AIDS *(45)*. After a competence training programme in Curitiba, Brazil, it was noted that the community did not have a single case of HIV mother-to-child transmission in the year following the intervention.

The self-assessment frameworks have been successfully adapted by many countries and individual communities. The competence approach has been effectively scaled up and used in nearly 30 countries since its development *(45)*. In 2005, the AIDS Competence Programme was used as a model to create the Malaria Competence approach with initial trial activities in 12 African countries *(46)*.

Ensuring that the benefits of innovation and research are available and used widely will require improved information and data sharing and better coordination of research at the national, regional and global levels. Implementation research can help to better inform service delivery approaches and improve uptake of key interventions, especially by underserved, vulnerable and key populations.

As an example of innovation, India created a mobile clinic to provide prenatal care and sexually transmitted infection services to pregnant women. The mobile clinic provided multiple services, including education of rural communities about maternal and child health; training community health workers in common safe birthing procedures; provision of comprehensive antenatal care; screening for HIV, HBV and syphilis to prevent mother-to child-transmission; screening for other sexually transmitted infections; and testing pregnant women for anaemia and other conditions. Mobile clinics were found to be feasible, successful and acceptable for delivering high-quality health care in rural and isolated settings *(47)*.

In rural areas of Mozambique, a mobile testing unit was used to rapidly scale up HIV screening, care and treatment; TB diagnosis and care; management of malaria, diarrhoea and malnutrition; and targeting of maternal and child care. The use of the mobile clinic strategy enabled the rapid expansion of HIV testing and treatment, while fixed-site clinics were refurbished and staff were trained *(48)*.

In Kenya and Uganda, through an innovative mobile multidisease community health campaign, including HIV testing, counselling, and referral to care if HIV infected, researchers achieved 89% HIV testing coverage of stable adult residents across 32 communities. These very high testing acceptance rates could only be achieved by using an approach that overcame the potential stigma associated with HIV testing *(49)*.

Adapting policies to the local context

WHO and other technical partners develop technical guidelines or guidance and recommendations for addressing high-impact communicable diseases based on the best available scientific evidence. However, guidelines are not a "one-size-fits-all" proposition. They must be adapted by each country to their own unique socioeconomic and health contexts, including regional or target population variations within each country.

Institutional capacities will need to be progressively strengthened and effective interventions scaled up to ensure that key health services reach all populations using high-impact interventions across the full health care continuum. Adequate allocation of financial and human resources is required to effectively address high-impact communicable diseases within the PHC system.

A review of WHO high-impact communicable disease focus countries indicates that 54 countries have two or more high-impact communicable diseases that need to be addressed with high priority. Common service delivery points, population groups, key populations and geographic settings will need to be mapped with the goal of maximizing synergies and responding efficiently to these illnesses and all other health issues that overlap in these populations.

Implementation research is an important factor for adapting policies to the local context. Well-designed studies will generate data on local social, economic, geographic, epidemiologic and other factors that impact the design and provision of health services. These data can then be used to improve access to and use of health services. Service delivery experts should be ready to experiment with models of care to maximize health impact, and scale up effective approaches.

Technical and development partners, such as WHO, UNAIDS, UNICEF and others, can help countries to adopt and adapt guidelines and recommendations to their national and local contexts. WHO country cooperation strategies provide a useful tool and a mutual accountability mechanism to create demand-based strategies to match WHO expertise and support to country health programme needs, including requirements to effectively address high-impact communicable diseases. Support will also be needed to develop sustainable health care financing mechanisms.

PHC is a WHO priority and is a cornerstone of achieving the 3 billion targets of the WHO 13th General Programme of Work. WHO is prioritizing its work to support countries to develop, finance and implement PHC-oriented health systems *(50)*.

Conclusions

The Global Conference on Primary Health Care is an opportunity to renew commitment to a well funded and revitalized PHC movement to accelerate progress towards the elimination of high-impact communicable diseases and achieve SDG 3, thereby fulfilling the original vision of the Declaration of Alma-Ata.

Achieving SDG target 3.3 — to end the epidemics of high-impact communicable diseases by 2030 — will be a considerable challenge but will have enormous health, social, economic and wider benefits for affected populations and beyond. Realizing SDG 3.3 targets could save more than 4 million lives per year. The response to high-impact communicable diseases will need to be prioritized to ensure that PHC can deliver effective interventions to the people that need them, where and when they are required, leaving no one behind. This will require differentiated and integrated packages of interventions adapted to the local conditions and target populations that address the full health care continuum and life stage needs of each population. Health systems need to ensure that the health products and services that are provided are of high quality and are effective, particularly within primary care and public health services. Innovation will be essential for reaching SDG 3. Finding new, effective ways to reach all at-risk populations is critical. If these populations are not fully empowered, engaged and given priority, the fight against high-impact communicable diseases will not be successful.

Results from PHC-based health systems demonstrate that the provision of people-centred, integrated, effective interventions against high-impact communicable diseases is possible. Effective and efficient use of people-centred PHC has led to many of the health gains in lower- and middle-income countries over the last 30 years. The further development of primary care services and their formal recognition as integral components of the health system will be necessary to fully attain SDG 3 targets. Adequate financial and human resources need to be committed to community-based primary care services to accelerate progress towards achieving SDG 3 and especially targets 3.3 and 3.8.

Efforts will also be required to address health through non-health sector laws and policies that may create barriers to access to services, including stigma or discrimination.

The responses to high-impact communicable diseases will require continued prioritization, even as ending the epidemics gets closer. Without continued vigilance, high-impact communicable diseases can recur or be reintroduced and return to epidemic levels quickly.

References

1. Health systems: universal health coverage. Geneva: World Health Organization (http://www.who.int/healthsystems/universal_health_coverage/en/, accessed 9 April 2019).
2. Service delivery and safety: WHO global strategy on people-centred and integrated health services. Geneva: World Health Organization; 2015 (http://www.who.int/servicedeliverysafety/areas/people-centred-care/global-strategy/en/, accessed 9 April 2019).
3. World health statistics 2018: monitoring health for the SDGs. Geneva: World Health Organization; 2018 (http://apps.who.int/iris/bitstream/handle/10665/272596/9789241565585-eng.pdf?ua=1, accessed 10 April 2019).
4. A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals. Geneva: World Health Organization and United Nations Children's Fund; 2018 (https://www.who.int/docs/default-source/primary-health/vision.pdf, accessed 10 April 2019).
5. Worldometer webpage (http://www.worldometers.info/world-population/, accessed 10 April 2019).
6. HIV/AIDS: data and statistics. Geneva: World Health Organization (http://www.who.int/hiv/data/en/, accessed 10 April 2019).
7. Global tuberculosis report 2018. Geneva: World Health Organization; 2018 (http://apps.who.int/iris/bitstream/handle/10665/274453/9789241565646-eng.pdf?ua=1, accessed 10 April 2019).
8. World malaria report 2017. Geneva: World Health Organization; 2017 (http://www.who.int/malaria/publications/world-malaria-report-2017/report/en/, accessed 10 April 2019).
9. Hepatitis B: key facts. Geneva: World Health Organization; 2018 (http://www.who.int/en/news-room/fact-sheets/detail/hepatitis-b, accessed 10 April 2019).
10. Hepatitis C: key facts. Geneva: World Health Organization; 2018 (http://www.who.int/en/news-room/fact-sheets/detail/hepatitis-c, accessed 10 April 2019).
11. Update on the global status of implementation of preventive chemotherapy (PC). Geneva: World Health Organization, Department of Control of Neglected Tropical Diseases; 2019 (http://www.who.int/neglected_diseases/preventive_chemotherapy/PC_Update.pdf, accessed 10 April 2019).
12. Children: reducing mortality. Geneva: World Health Organization; 2018 (http://www.who.int/news-room/fact-sheets/detail/children-reducing-mortality, accessed 10 April 2019).
13. You D, Hug L, Ejdemyr S, Idele P, Hogan D, Mathers C et al. Global, regional, and national levels and trends in under-5 mortality between 1990 and 2015, with scenario-based projections to 2030: a systematic analysis by the UN Inter-agency Group for Child Mortality Estimation. Lancet. 2015;386:2275–86.
14. MDG progress reports – Africa. Assessing progress in Africa toward the Millennium Development Goals. Addis Ababa, Ethiopia: United Nations Economic Commission for Africa, African Union, African Development Bank and United Nations Development Programme; 2015 (http://www.undp.org/content/undp/en/home/librarypage/mdg/mdg-reports/africa-collection.html, accessed 10 April 2019).
15. Rwanda Ministry of Health, Health Sector Policy Workshop, 2014, as cited in: Perry H, Zulliger R, Scott K, Javadi D, Gergen J, Shelley K et al. Case studies of large-scale community health worker programs: examples from Afghanistan, Bangladesh, Brazil, Ethiopia, Niger, India, Indonesia, Iran, Nepal, Pakistan, Rwanda, Zambia, and Zimbabwe. Washington (DC): USAID, Maternal and Child Health Integrated Program; 2017 (https://www.mcsprogram.org/wp-content/uploads/2017/01/CHW-CaseStudies-Globes.pdf, accessed 10 April 2019).
16. Decroo T, Telfer B, Dores CD, White RA, Dos Santos N, Mkwamba A et al. Effect of community ART groups on retention-in-care among patients on ART in Tete province, Mozambique: a cohort study. BMJ Open. 2017;7:e016800.

17. Perry H, Zulliger R, Scott K, Javadi D, Gergen J, Shelley K et al. Case studies of large-scale community health worker programs: examples from Afghanistan, Bangladesh, Brazil, Ethiopia, Niger, India, Indonesia, Iran, Nepal, Pakistan, Rwanda, Zambia, and Zimbabwe. Washington (DC): USAID, Maternal and Child Health Integrated Program; 2017 (https://www.mcsprogram.org/wp-content/uploads/2017/01/CHW-CaseStudies-Globes.pdf, accessed 10 April 2019).

18. In Ethiopia, a far-reaching health worker programme has helped reduce child mortality across the country. UNICEF webpage, 13 September 2013 (https://www.unicef.org/esaro/media-centre_ethiopia_child-mortality.html, accessed 10 April 2019).

19. Millennium Development Goals indicators: Ethiopia country data. United Nations Statistics Division (https://unstats.un.org/unsd/mdg/Default.aspx, accessed 10 April 2019).

20. Primary health care systems (PRIMASYS): case study from Ethiopia. Geneva: World Health Organization, Alliance for Health Policy and Systems Research; 2017 (http://www.who.int/alliance-hpsr/projects/alliancehpsr_ethiopiaprimasys.pdf, accessed 10 April 2019).

21. Making HIV, TB and malaria investments work: how WHO makes a difference at country level. Geneva: World Health Organization; 2016 (http://apps.who.int/iris/bitstream/handle/10665/208874/WHO_HTM_HMA_2016.01_eng.pdf?sequence=1&isAllowed=y, accessed 10 April 2019).

22. Bowen HL. Impact of a mass media campaign on bed net use in Cameroon. Malaria Journal. 2013;12:36 (http://www.malariajournal.com/content/12/1/36, accessed 10 April 2019).

23. UNAIDS, Miles to go: closing gaps, breaking barriers, righting injustices. Global AIDS update 2018. Geneva: UNAIDS; 2018 (http://www.unaids.org/sites/default/files/media_asset/miles-to-go_en.pdf, accessed 10 April 2019).

24. Towards the end of the epidemics: baseline report. Geneva: World Health Organization; 2017 (http://apps.who.int/iris/bitstream/handle/10665/258692/WHO-HTM-HMA-2017.03-eng.pdf?sequence=1, accessed 10 April 2019).

25. World Health Organization and World Bank. Tracking universal health coverage: first global monitoring report. Geneva: World Health Organization; 2015 (http://apps.who.int/iris/bitstream/10665/174536/1/9789241564977_eng.pdf?ua=1, accessed 10 April 2019).

26. August 2018 medicines catalog. Geneva: Stop TB Partnership, Global Drug Facility; 2018 (http://stoptb.org/assets/documents/gdf/Medicines_Catalog_2018_WEBv3.pdf, accessed 10 April 2019).

27. Koné I, Marschall P, Flessa S. Costing of malaria treatment in a rural district hospital. Health. 2010;7:759–68.

28. LaBeaud AD, Nayakwadi Singer M, McKibben M, Mungai P, Muchiri EM, McKibben E et al. Parasitism in children aged three years and under: relationship between infection and growth in rural coastal Kenya. PLoS Neglected Tropical Diseases. 2015;9(5):e0003721.

29. Copenhagen Consensus, outcome: the expert panel findings. Copenhagen Consensus; 2012 (https://www.copenhagenconsensus.com/copenhagen-consensus-iii/outcome, accessed 10 April 2019).

30. Masters R, Anwar E, Collins B, Cookson R, Capewell S. Return on investment of public health interventions: a systematic review. Journal of Epidemiology and Community Health. 2017;71:827–34 (https://jech.bmj.com/content/71/8/827, accessed 10 April 2019).

31. Gunda R, Chimbari MJ. Cost-effectiveness analysis of malaria interventions using disability adjusted life years: a systematic review. Cost Effectiveness and Resource Allocation. 2017;15:10.

32. Montresor A, Trouleau W, Mupfasoni D, Bangert M, Joseph SA, Mikhailov A et al. Preventive chemotherapy for the control of soil transmitted helminthiasis averted more than 500 thousand DALYs in 2015. Transactions of the Royal Society of Tropical Medicine and Hygiene. 2017;111(10):457–63.

33. WHO guideline on health policy and system support to optimize community based health worker programmes. Geneva: World Health Organization; 2018 (https://apps.who.int/iris/bitstream/handle/10665/275474/9789241550369-eng.pdf?ua=1, accessed 10 April 2019).

34. Vaughan K, Kok MC, Witter S, Dieleman M. Costs and cost-effectiveness of community health workers: evidence from a literature review. Human Resources for Health. 2015;13:71 (https://doi.org/10.1186/s12960-015-0070-y, accessed 10 April 2019).

35. Baggaley RF, Irvine MA, Leber W, Cambiano V, Figueroa J, McMullen H et al. Cost-effectiveness of screening for HIV in primary care: a health economics modelling analysis. Lancet HIV. 2017;4:e465–74 (http://dx.doi.org/10.1016/S2352-3018(17)30123-6, accessed 10 April 2019).

36. Assoumou S, Tasillo A, Leff JA, Shackman BR, Drainoni M-L, Horsburgh CR et al. The cost-effectiveness of hepatitis C screening strategies among adolescents and young adults in primary care settings. Open Forum Infectious Diseases. 2016;3(Suppl. 1):1786 (https://doi.org/10.1093/ofid/ofw194.144, accessed 10 April 2019).

37. Global Action Plan on Antimicrobial Resistance. Geneva: World Health Organization; 2015 (http://www.who.int/antimicrobial-resistance/global-action-plan/en/, accessed 10 April 2019).

38. Binagwaho A, Farmer PE, Nsanzimana S, Karema C, Gasana M, de Dieu Ngirabega J et al. Rwanda 20 years on: investing in life. Lancet. 2014;384(9940):371–5 (http://doi.org/10.1016/S0140-6736(14)60574-2, accessed 10 April 2019).

39. Universal health coverage across the life course. Geneva: World Health Organization (http://www.who.int/life-course/en/, accessed 10 April 2019).

40. Hadi A. Management of acute respiratory infections by community health volunteers: experience of Bangladesh Rural Advancement Committee (BRAC). Bulletin of the World Health Organization. 2003;81(3):183–9 (http://www.who.int/bulletin/volumes/81/3/Hadi0303.pdf, accessed 10 April 2019).

41. Mushtaque A, Chowdhury R, Chowdhury S, Islam N, Islam A, Vaughan JP. Control of tuberculosis by community health workers in Bangladesh. Lancet. 1997;350(9072):169–72.

42. HIV/AIDS: Viral suppression for HIV treatment success and prevention of sexual transmission of HIV. Geneva: World Health Organization (http://www.who.int/hiv/mediacentre/news/viral-supression-hiv-transmission/en/, accessed 10 April 2019).

43. Molyneux M, Molyneux E. Reaching Millennium Development Goal 4. Lancet. 2016;4(3):E146–7 (https://www.thelancet.com/action/showPdf?pii=S2214-109X%2816%2900009-7, accessed 11 April 2019).

44. WHO announces landmark changes in MDR-TB treatment regimens. Geneva: World Health Organization website; 17 August 2018 (http://www.who.int/tb/features_archive/new_MDR_regimens/en/, accessed 11 April 2019).

45. Evaluation of the UNAIDS/UNITAR AIDS Competence Programme. Geneva: UNAIDS and UNITAR; 2005 (http://data.unaids.org/publications/irc-pub06/jc1144-acp.evaluation_en.pdf, accessed 11 April 2019).

46. Striving for malaria competence: progress report from 12 countries, July to November 2005. Geneva: Roll Back Malaria; 2005 (internal document).

47. Kojima N, Krupp K, Ravi K, Gowda S, Jaykrishna P, Leonardson-Placek C et al. Implementing and sustaining a mobile medical clinic for prenatal care and sexually transmitted infection prevention in rural Mysore, India. BMC Infectious Diseases. 2017;17:189 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5338078/, accessed 11 April 2019).

48. Moon TD, Jequicene T, Blevins M, José E, Lankford JR, Wester CW et al. Mobile clinics for antiretroviral therapy in rural Mozambique. Bulletin of the World Health Organization. 2014;92:680–4. doi:http://dx.doi.org/10.2471/BLT.13.129478.

49. Chamie G, Clark TD, Kabami J, Kadede K, Ssemmondo E, Steinfeld R et al. A hybrid mobile HIV testing approach for population-wide HIV testing in rural East Africa: an observational study. Lancet HIV. 2016; 3(3): e111–e119. doi:10.1016/S2352-3018(15)00251-9.

50. Thirteenth General Programme of Work 2019–2023. Geneva: World Health Organization; 2018 (http://www.who.int/about/what-we-do/gpw-thirteen-consultation/en/, accessed 11 April 2019).

TECHNICAL SERIES

ON PRIMARY HEALTH CARE