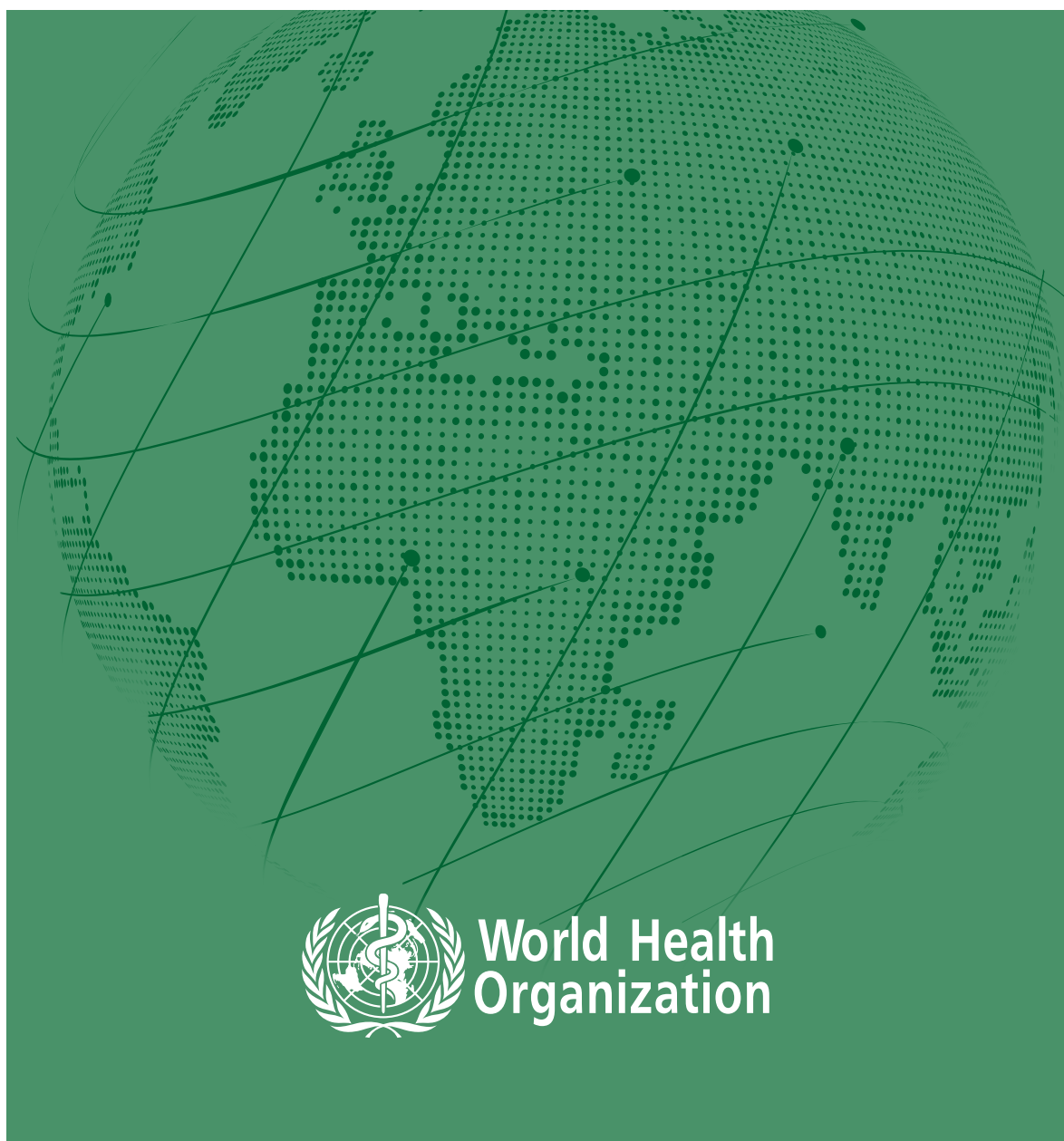


INTERNATIONAL HEALTH REGULATIONS (2005)

JOINT EXTERNAL EVALUATION TOOL

THIRD EDITION



World Health
Organization

INTERNATIONAL HEALTH REGULATIONS (2005)

JOINT EXTERNAL EVALUATION TOOL

THIRD EDITION



**World Health
Organization**

Joint external evaluation tool: International Health Regulations (2005), third edition

ISBN 978-92-4-005198-0 (electronic version)

ISBN 978-92-4-005199-7 (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. Joint external evaluation tool: International Health Regulations (2005), third edition. Geneva: World Health Organization; 2022. Licence: [CC BY-NC-SA 3.0 IGO](https://creativecommons.org/licenses/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 <https://apps.who.int/bookorders/>. To submit requests for commercial use and queries on rights and licensing, see <https://www.who.int/about/policies/publishing/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.

Design by Cosmic Arts

Front cover Image by Freepik

CONTENTS

ABBREVIATIONS	iv
INTRODUCTION	1
COUNTRY EVALUATION TOOL	
PREVENT	7
P1. LEGAL INSTRUMENTS	7
P2. FINANCING	12
P3. IHR COORDINATION, NATIONAL IHR FOCAL POINT..... FUNCTIONS AND ADVOCACY	16
P4. ANTIMICROBIAL RESISTANCE.....	24
P5. ZOOBOTIC DISEASE.....	34
P6. FOOD SAFETY.....	40
P7. BIOSAFETY AND BIOSECURITY.....	44
P8. IMMUNIZATION	51
DETECT	55
D1. NATIONAL LABORATORY SYSTEM.....	55
D2. SURVEILLANCE	62
D3. HUMAN RESOURCES	67
RESPOND	74
R1. HEALTH EMERGENCY MANAGEMENT	74
R2. LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES.....	85
R3. HEALTH SERVICES PROVISION.....	88
R4. INFECTION PREVENTION AND CONTROL.....	92
R5. RISK COMMUNICATION AND COMMUNITY ENGAGEMENT	97
IHR RELATED HAZARDS AND POINTS OF ENTRY AND BORDER HEALTH.....	104
PoE: POINTS OF ENTRY AND BORDER HEALTH.....	104
CE. CHEMICAL EVENTS	110
RE. RADIATION EMERGENCIES	115
ANNEX 1. GLOSSARY	120
ANNEX 2. SUMMARY OF CHANGES BETWEEN JEE TOOL SECOND..... AND THIRD EDITIONS	128

ABBREVIATIONS

AAR	After Action Review
AMR	Antimicrobial resistance
BioDoseNet	Biodosimetry Network of Laboratories for Radiation Emergencies
CBS	Community based surveillance
CPE	Continuing professional education
EBS	Event-based surveillance
EMT	Emergency medical team
EOC	Emergency operations centre
EQA	External quality assessment
FAO	Food and Agriculture Organization of the United Nations
FETP	Field Epidemiology Training Programme
GAP	Global Action Plan
GLASS	Global Antimicrobial Resistance Surveillance System
HCAI	Health care acquired infection
HCF	Health care facilities
HIV	Human immunodeficiency virus
IAEA	International Atomic Energy Agency
IAR	Intra-Action Review
IBS	Indicator-based surveillance
IHR	International Health Regulations
IMS	Incident management system
INFOSAN	International Food Safety Authorities Network
INTERPOL	International Criminal Police Organization
ISO	International Organization for Standardization
IT	Information technology
JEE	Joint External Evaluation
MDRO	Multidrug resistant organism

MCV	Measles-containing vaccine
MoU	Memorandum of understanding
NAPHS	National Action Plan for Health Security
NCC	National Coordinating Centre
NFP	National Focal Point
NGO	Nongovernmental organization
OIE	World Organisation for Animal Health
PCR	Polymerase chain reaction
PHEIC	Public health emergency of international concern
PHEOC	Public health emergency operations centre
PHEM	Public health emergency management
PoE	Point of entry
PPE	Personal protective equipment
PVS	Performance of Veterinary Services
R&D	Research and development
RANET	Response and Assistance Network
RCCE	Risk communication and community engagement
REMPAN	Radiation Emergency Medical Preparedness and Assistance Network
RRT	Rapid response team
SOP	Standard operating procedure
SWOT	Strengths, weaknesses, opportunities, threats
TrACCS	Tripartite AMR Country Self-Assessment Survey
VPD	Vaccine-preventable disease
WAHIS	World Animal Health Information System
WASH	Water, sanitation and hygiene
WHA	World Health Assembly
WHO	World Health Organization

INTRODUCTION

THE INTERNATIONAL HEALTH REGULATIONS (2005)

In May 2005, the fifty-eighth World Health Assembly adopted the International Health Regulations (IHR (2005)), hereinafter “IHR” or “the Regulations”), which entered into force on 15 June 2007. The IHR requires all States Parties to develop certain core public health capacities, related to “the capacity to detect, assess, notify and report events” (Article 5) and “the capacity to respond to promptly and effectively to public health risks and public health emergencies of international concern” (Article 13). State Parties and the World Health Organization (WHO) Director-General are also required to report annually to the World Health Assembly on the implementation of these Regulations (Article 54 and Resolution WHA61.2).

To support countries in assessing IHR core capacities and facilitate their annual reporting duties, the Secretariat of the IHR hosted by WHO developed the IHR Monitoring and Evaluation Framework (IHRMEF). The IHRMEF comprise the States Parties Annual Reporting (SPAR) tool for mandatory annual reporting and three voluntary components, including the Joint External Evaluation (JEE), for assessment and testing of IHR core capacities.

External evaluations were recommended by the IHR Review Committee¹ to “move from exclusive self-assessments to approaches that combine self-evaluation, peer review and external evaluations involving a combination of domestic and independent experts. These additional approaches should consider, among other things, strategic and operational aspects of the implementation of the IHR, such as the need for high-level political commitment, and whole-of-government/multisectoral engagement”. This recommendation was further echoed by the Review Committee on the Role of the IHR in the Ebola Outbreak and Response in its fourth recommendation to “introduce and promote external assessment of core capacities”.

Based on existing WHO tools and various regional strategies and other initiatives, such as the Global Health Security Agenda, and the World Organisation for Animal Health (OIE) Performance of Veterinary Services (PVS) Pathway, the Secretariat developed the JEE tool, which had its first edition in February 2016.

Following experiences and lessons learned from public health emergencies; suggested improvements from WHO regional offices, technical area leads in WHO headquarters; and recommendations from external experts, who had participated in JEE missions, and Member States, a revised version of the JEE tool was published in 2018 by the Secretariat.

In 2020, the IHR Review Committee and the Independent Oversight and Advisory Committee for the WHO Health Emergencies Programme expressed the need to adjust the IHRMEF instruments, including the JEE, based on lessons learned from the COVID-19 pandemic. In 2021, a consultative meeting reviewed lessons from COVID-19 pandemic for IHRMEF instruments and made recommendations for improvement of the JEE. Subsequently, a technical working group composed of global experts from WHO, partner institutions and Member States was constituted to review and revise the JEE tool based on the recommendations of the technical consultative meeting. The WHO secretariat worked during the following month to develop this new third edition of the JEE.

¹ IHR Review Committee on Second Extensions for establishing national public health capacities and on IHR implementation, 2014, (WHA68/22 Add.1).

SUMMARY OF CHANGES INCORPORATED INTO THE THIRD REVISION OF THE JEE

The main changes within the third edition of the JEE tool include the split of the technical area P1. National legislation, policy and financing into two technical areas (P1. Legal instruments and P2. Financing); the drop of the technical area previously titled D3. Reporting and the move of indicators to the technical area P3. IHR coordination, National IHR Focal Point and advocacy; and the merging of two previous technical areas (R1. Emergency preparedness and R2. Emergency operations centre) into a single one named R1. Health emergency management. A detailed overview of the changes between the second and third edition of the JEE is included in ANNEX 2.

The COVID-19 pandemic revealed the magnitude of health inequities that persist globally. The third edition integrates equity considerations across various technical areas through technical questions aimed at identifying support for vulnerable populations, including through data collection and reporting. This approach allows for more constructive conversations within the country and with JEE external evaluators around this issue and its intersection with other relevant capacities.

PURPOSE OF THE JEE

The purpose of the external evaluation is to measure country-specific status and progress in developing capacity to prevent, detect and rapidly respond to public health threats, be they naturally occurring, deliberate or accidental. The first external evaluation establishes a baseline measurement of the country's capacity and capabilities, and subsequent evaluations identify progress made and sustainability of improvements.

JEEs have a number of important features including voluntary country participation; a multisectoral approach by both the external teams and the host countries; transparency and openness of data and information sharing; and the public release of reports.

The JEE creates a common platform for country information and data. This allows countries to identify the most urgent needs within their health security system, to prioritize opportunities for enhanced preparedness, operational readiness,² response and action, and to engage with current and prospective donors as well as partners including UN agencies, local and international nongovernmental organizations to target resources effectively. Transparency is an important element for attracting and directing resources to where they are needed the most. In addition, JEE priorities and the development of a multiyear national action plan can help ensure operational readiness in countries with urgent needs (such as highly vulnerable, low resource settings).

The JEE tool supports the external evaluation process including development of recommendations across 19 technical areas. The JEE can also serve as a mechanism to validate the results of the SPAR.

² "Operational readiness" concept was derived from the 'readiness' definition of United Nations General Assembly, 2017 and enables countries to fast track the development of certain capacities in order to be ready to respond to emergencies, including imminent high risks, while system-wide capacity development is ongoing.

PROCESS FOR VOLUNTARY JEE

The first stage of the process is a self-evaluation completed by the country with multisectoral engagement using the JEE tool and country implementation guide.³ This self-evaluation information covering all the 19 capacities in the tool is then given to the external JEE team consisting of international subject matter experts.⁴ Review of this self-evaluation data provides the team members with an understanding of the country's baseline health security capabilities. The JEE team then visit the country for facilitated in-depth review of the self-evaluation data, structured site visits and meetings organized by the host country. Other sources of data for the external evaluation include reports from various relevant evaluations and assessments, such as the OIE PVS Pathway and disaster risk reduction assessments among others.

At the end of the evaluation, the JEE team prepares a report of the findings; it includes status levels for each indicator of the 19 capacities, gaps identified, as well opportunities and challenges for capacity development. The draft report is shared with the host country to review the findings. Subsequently, the final JEE report is finalized and published on the WHO website.⁵ The JEE approach facilitates sharing of best practices, promotes international accountability, engages stakeholders (e.g., policy-makers, leaders, technical staff, etc.), and informs and guides IHR implementation both in the host country and internationally.⁶ The JEE should be repeated every four to five years.

THE JEE FORMAT

Each indicator in the JEE tool has attributes that reflect various levels of capacity. These are identified with scores ranging from "1" (indicating that implementation has not occurred) to "5" (indicating that implementation has occurred, is tested, reviewed, and exercised, and that the country has a sustainable level of capability for the indicator). For each indicator, a country receives a single score based on the shared appreciation of its current implementation. The "technical area questions" help the evaluators determine the appropriate score. Most of the measures are descriptive and qualitative. Countries are asked to provide documentation for relevant items. The documentation and responses are reviewed by the evaluators and discussed with host country experts using a peer-to-peer, consensus-based approach. The final report includes scores and a narrative that document existing capacities, gaps, challenges and recommendations for strengthening the related capacity. The key findings are presented as three to five priority actions for each of the 19 technical areas.

³ IHR: Joint External Evaluation. Country implementation guide. WHO/WHE/CPI/2017.62. Geneva: World Health Organization; 2017 (<https://www.who.int/publications/i/item/WHO-WHE-CPI-2017.62>, accessed 06 January 2022).

⁴ IHR: joint external evaluation. Roster of experts process and overview. WHO/WHE/CPI/2017.63. Geneva: World Health Organization; 2017 (<http://apps.who.int/iris/bitstream/10665/259604/1/WHO-WHE-CPI-2017.63-eng.pdf>, accessed 06 December 2022).

⁵ IHR: joint external evaluation: Mission reports. [website] <https://www.who.int/emergencies/operations/international-health-regulations-monitoring-evaluation-framework/joint-external-evaluations>, accessed on 23 March 2022).

⁶ In the WHO African Region, IHR implementation is within the context of Integrated Disease Surveillance and Response Strategy and in the Asia Pacific (South-East Asia Region and Western Pacific Region), IHR implementation is in the context of the Asia-Pacific Strategy for Emerging Diseases.

COLOUR SCORING SYSTEM

While there is overlap among the capacity sections of the tool, each capacity is considered separately in the evaluation exercise. The following describes the level of advancement or scoring with colour coding.

1. No capacity: Attributes of a capacity are not in place.

Colour code: Red



2. Limited capacity: Attributes of a capacity are in development stage (implementation has started with some attributes achieved and others commenced).

Colour code: Orange



3. Developed capacity: Attributes of a capacity are in place; however, sustainability has not been ensured (such as through inclusion in the operational plan of the national health sector plan with a secure funding source).

Colour code: Yellow



4. Demonstrated capacity: Attributes are in place and sustainable for a few years and can be measured by the inclusion of attributes or IHR core capacities in the national health sector plan and a secure funding source.

Colour code: Light green



5. Sustainable capacity: All attributes are functional and sustainable, and the country is supporting one or more other countries in their implementation. This is the highest level of the achievement of implementation of IHR core capacities.

Colour code: Green



1. A country can advance to the next adjacent level only when it has achieved ALL the attributes of its current capacity levels. For example, in order to reach “demonstrated” capacity, it has to meet all the attributes of “developed” and “demonstrated” capacity.

2. All responses must be supported by documentable evidence.

CONTEXTUAL QUESTIONS

These are questions on or relating to circumstances that form the backdrop for the given technical areas.

TECHNICAL QUESTIONS

These are questions directly related to technical area indicators and attributes, which enable the country and external team to evaluate achievements against specific attributes.

DOCUMENTATION OR EVIDENCE FOR LEVEL OF CAPABILITY

Some responses to contextual and technical questions require documentation, which provides evidence to evaluate the level of achievement in specific indicators and technical areas.

Note: In some technical areas indicator specific documentation is requested.

COUNTRY EVALUATION TOOL

P1. LEGAL INSTRUMENTS

Targets: Adequate legal instruments for States Parties to support and enable the implementation of all their obligations and rights created by the IHR. The development of new or modified legal instruments in some States Parties for the implementation of the Regulations. Where new or revised legal instruments may not be specifically required under a State Party's legal system, the State may revise some laws, regulations or other legal instruments in order to facilitate their implementation in a more efficient, effective or beneficial manner.

As measured by: Current legal instruments including constitutions, laws, arrêtés, decrees, regulations, administrative requirements, or other government instruments, proven to be adequate to support IHR implementation across relevant sectors.

Desired impact: Legal instruments are in place in all relevant sectors to support IHR implementation including core capacity development and maintenance.

Level	P1.1. Legal instruments ¹	Choose one level
Level 1	The country has not conducted legal mapping ² of relevant legal instruments for IHR implementation	
Level 2	The country has conducted a legal mapping of relevant legal instruments for IHR implementation at the national and intermediate levels and documented, where applicable	
Level 3	The country has conducted a legal analysis ³ (legal mapping and legal assessment ⁴) and identified and reviewed gaps in the health sector and developed and/or revised the necessary legal instruments for IHR implementation at the national and intermediate levels, where applicable	
Level 4	The country has conducted a legal analysis (legal mapping and legal assessment) and identified and reviewed gaps in all sectors and across government levels ⁵ and developed and/or revised the necessary legal instruments for IHR implementation at the national and intermediate levels, where applicable	

¹ Legal instruments: Measures enacted and implemented by national or intermediate levels of government that are legally binding and enforceable. The types of legal instruments vary depending on the country's legal system. (e.g., constitutions, laws, arrêtés, decrees, regulations, administrative requirements and applicable international agreements).

² Legal mapping helps to survey (and compare) the relevant legal instruments existing within a larger context in order to understand the country's legal frameworks for the prevention, preparedness, and response of public health emergencies. Such mapping provides a look at legal instruments across jurisdictions and/or review of legal instruments within a jurisdiction to understand how public health risks are addressed. Legal mapping involves the review and documentation of the existence of legal authorities, what those authorities do or provide, and what they do not provide. Legal mapping is an objective activity. The process does not intend to evaluate the effectiveness of legal instruments, nor analyse its gaps. In the context of this indicator, legal mapping supports and facilitates the development, implementation, and strengthening preparedness for and response to public health risks (In accordance with Article 1 of IHR (2005)), a likelihood of an event that may affect adversely the health of human populations, with an emphasis on one which may spread internationally or may present a serious and direct danger.

³ Legal analysis is a process consisting of legal mapping, legal assessment and legal surveillance.

⁴ Legal assessment is a functional review to evaluate the effectiveness of legal instruments, analyzing gaps with the country's legal system and national context in mind. Assessment findings are designed to inform the refinement and revision of existing instruments. Assessments can include simulation exercises as part of wider emergency preparedness planning.

⁵ This should be at national, intermediate and primary public health response levels, as appropriate to the structure of the country.

Level	P1.1. Legal instruments ¹	Choose one level
Level 5	The country has conducted a legal analysis (legal mapping and legal assessment) and identified and reviewed gaps in all sectors and across government levels and developed and/or revised the necessary legal instruments for IHR implementation in all sectors and across government levels, which are regularly evaluated using legal surveillance ⁶ and improved based on lessons learned from real-world events and exercises ⁷ (as applicable)	

Level	P1.2. Gender equity and equality ⁸ in health emergencies	Choose one level
Level 1	No systematic assessment of gender gaps ⁹ in any of the IHR capacities has been conducted	
Level 2	Systematic assessment ¹⁰ of gender gaps has been conducted in at least one IHR capacity	
Level 3	An action plan ¹¹ to address identified high priority gender gaps ¹² in at least one IHR capacity is developed and incorporated in annual workplans	
Level 4	The developed action plan(s) to address at least one IHR capacity is funded and being implemented, with mechanisms in place for monitoring, evaluation and reporting	
Level 5	Systematic gender analysis of IHR capacities is conducted, and action plans to address gender gaps and inequalities are developed, funded and operationalized in at least three IHR capacities, with mechanisms in place for monitoring, evaluation and reporting	

Contextual questions

1. How are legal instruments developed, reviewed and enforced in the country at the national level?
2. How are legal instruments developed, reviewed and enforced in the country at the subnational level?
3. How do legal instruments and policies at the national level link with those at the intermediate public health response level?
4. Do the current legal instruments codify and facilitate coordination and cooperation during a public health emergency across sectors?

⁶ Legal Surveillance is tracking changes to legal instruments over time

⁷ See objectives of the Global Health Security Legal Preparedness Action Package for further guidance. Available at Legal Preparedness – Global Health Security Agenda (<https://ghsagenda.org/>).

⁸ See definition of "Gender equality" in the Glossary. For further guidance see WHO Gender and health Q&A. (<https://www.who.int/news-room/questions-and-answers/item/gender-and-health>, accessed 15/02/2022).

⁹ See definition of "Gender gaps" in the Glossary.

¹⁰ See definition of "Gender systematic assessment" in the Glossary.

For further guidance see the following document; WHO (2011). Gender mainstreaming for health managers: A practical approach. Participant's Notes. (<https://www.who.int/publications/i/item/9789241501057>, accessed 16 March 2022).

¹¹ See definition of "Gender action plan" in the Glossary.

¹² See definition of "Gender high priority gaps" in the Glossary.

5. Are officials across relevant sectors aware of relevant legal instruments that support IHR implementation?
6. Are legal resources and advisers available to guide IHR implementation and the management of health emergencies?
7. To what extent do legal instruments address equity?
8. How is health inequity related to gender inequality in the country?
9. How are existing IHR capacities limited or challenged by gender inequalities?
10. Are the perspectives of different genders taken into consideration to guide IHR implementation and the management of health emergencies?

Technical questions¹³

P1.1. Legal instruments

1. Does the country have capacity to conduct legal mapping at the national and intermediate levels to identify needs for revision and/or development of new instruments?
2. Are there specific legal instruments describing the legal authorities for health emergency declaration, preparedness, operational readiness and response planning, and recovery actions with sector specific policies/provisions? (e.g., identifies lead sector for health emergency management.)
3. Are there legal instruments to ensure engagement of communities, civil society, community organizations and networks and private practitioners for early detection and immediate reporting of unusual public health events at the primary health care level?
4. Has mapping of legal instruments and policies and other governmental instruments been carried out at the national and intermediate public health response levels to identify needs for revision and/or development of new instruments for facilitating full domestic implementation of the IHR and other select public health functions? (Show evidence)
5. Has a legal assessment been conducted to complete a functional review to evaluate the effectiveness of legal instruments, analyzing gaps within the country's legal system? (Show evidence)
6. Has a legal assessment been conducted to help inform the refinement and revision of existing legal instruments in effort to regularly test and evaluate legal instruments (i.e. simulation exercise or evaluation as part of emergency preparedness planning)? (Show evidence)
7. Do legal instruments provide an all-of-government and all-of-society approach at all government levels for public health emergency preparedness and response?
8. Do the country's legal instruments currently encourage and support multisectoral coordination and, coordination across national, intermediate and local levels of government? (Show evidence)
9. Do legal instruments assign clear decision-making authority, identify key government authorities during public health emergencies and for preparedness, and build agility

¹³ These questions should be answered by legal or legal advisers, or experts at the health ministry or other relevant government offices/National IHR Focal Points. Please ask to see the relevant documents.

and flexibility into decision-making, which can include delegation of authority within the government or to nongovernmental professional organizations?

10. Do legal instruments facilitate coordination and cooperation at the domestic-international interface during a public health emergency?
11. What are the administrative requirements the country has identified to implement these legal instruments and policies?
12. Do legal instruments provide safeguards to promote governmental transparency and accountability?
13. Do legal instruments provide safeguards for the protection of vulnerable and at-risk populations during public health emergencies?

P1.2. Gender equality in health emergencies

1. To what extent do legal instruments address equity?
2. Are there mechanisms and tools available for the collection, reporting and dissemination of data disaggregated by sex, age, education, income/economic status, ethnic origin, geographical location, disability and/or other variables, with respect to health emergencies and across IHR capacities? (e.g. Do surveillance mechanisms include sex disaggregation at all levels of data collection and analysis?) Have gender and equity gaps in data collection, management, analysis and use been assessed for one or more IHR capacity? (e.g., Analysis of gender-ratios in health workforce, including decision-making roles; analysis of who cares for livestock, and whether gender roles allow them to access information and service for the prevention of zoonotic diseases; immunization coverage across genders; etc.) To what extent do monitoring and evaluation indicators, advocacy and communication reflect gender differentials across IHR capacities? (e.g., indicator's measure differentiated exposure to risk across people of diverse gender identities, accounting for their differentiated roles in the communities they live in; press releases and public statements include sex-disaggregated data; etc.)
3. Is there an action plan available, for one or more IHR capacities, which clearly draws on the gender and equity analysis to strengthen preparedness and response, with specific actions identified for implementation? (e.g., Targeted design of risk communication messaging to reach marginalized and vulnerable groups, and sub populations, including specific gender identities; design of laboratory testing facilities that allow accessibility by marginalized and vulnerable groups and people of diverse gender identities; measures to reduce gender pay-gaps; training of women health care workers to balance surge-deployment rosters; action plan for the delivery of essential reproductive health care in emergency settings; national plan for mass vaccination response to outbreaks of vaccine preventable diseases (VPD) address barriers to vaccine access and uptake for marginalized and vulnerable groups and ensure equitable distribution and administration of vaccines; mechanisms to reduce risk-exposure of most vulnerable groups/ professions/cadres; prepositioning of personal protective equipment (PPE) for medical personnel that tailored to a diversity of body-types; targeted campaigns for the prevention of zoonotic diseases that account for varying gender roles; etc.)

4. Are these action plans costed and financed, with evidence of implementation, and monitoring mechanisms identified? Are reports providing detailed information on changes generated through implementation of these action plans available (e.g., increase in the ratio of most vulnerable population groups reached; reduction in gender inequalities in access to health services; increase in gender parity across decision-making roles within IHR capacities; etc.)?

Documentation or evidence for level of capacity:

- Legal instruments related to disease control, IHR, etc. (e.g., legislation describing the legal mandate for emergency preparedness, operational readiness and response planning, and recovery actions with sector specific policies/provisions).
- Legal mapping, legal assessment or evaluation reports of legal instruments.
- Any other legal instruments pertinent to biological, chemical and radiological hazards from relevant sectors.
- Assessments and other evidence-based research documenting gender inequalities in IHR capacities' areas, by government and external partners including civil society organizations.
- Action plan(s) and strategies developed to prevent and address gender inequalities in areas related to IHR core capacities.
- Budget allocations to strategies and/or activities specifically aimed at addressing gender inequalities.
- Reports from civil society organizations, Ministry of Social Affairs/Ministry of Women and Family Affairs (or other institutional mechanisms for gender equality available in the country).

P2. FINANCING

Targets: States Parties ensure provision of adequate funding for IHR implementation through the national budget or other mechanisms. Country has access to financial resources for the routine implementation of IHR capacities and financial resources that can be accessed on time and distributed for readiness and response to public health emergencies, is available.

As measured by: Adequate financial resources available to enable efficient and effective IHR implementation and response to all public health emergencies.

Desired impact: Financial resources are available in all relevant sectors and public financial management systems enable IHR implementation including core capacity development and maintenance as well as for a public health response.

Level	P2.1. Financial resources ¹⁰ for IHR implementation	Choose one level
Level 1	There is no financial planning, budget line or budgetary allocation available to finance IHR implementation. Financial resources for IHR implementation and national plans are through extrabudgetary ¹¹ means with no accountability mechanism in place	
Level 2	Financial planning is limited with a national level budgetary allocation or substantial external financing ¹² made for some of the relevant ministries and sectors ¹³ and their respective ministries to support IHR implementation at the national level	
Level 3	Financial planning is based on estimated resource needs, and a budgetary allocation and/or substantial external financing made for relevant ministries and sectors is available to support IHR implementation at the national level. Limited monitoring and accountability mechanisms are in place	
Level 4	Financial planning is aligned with national priorities. Sufficient budget allocation is available for relevant ministries and sectors to support IHR implementation at national, intermediate, and local levels. External financing is primarily used for capital expenditures. The budget is predictable, flexible, and distributed in a timely manner at the national, intermediate and local levels in all relevant ministries or sectors, with monitoring and accountability mechanisms in place	
Level 5	Financial planning is aligned with national priorities. Sufficient budget allocation is available for all relevant ministries and sectors to support IHR implementation at national, intermediate, and local levels and service providers. The budget is fully executed, predictable, flexible budget and distributed in a timely manner. The budget is monitored against objectives, outputs and impact and accountability mechanisms are in place at each level for transparent and effective use of funds	

¹⁰ Financial resources refer to resources planned, allocated, distributed and executed on activities and interventions.

¹¹ Extrabudgetary means: financial transactions, often with separate banking and institutional arrangements, that are not included in the annual state budget law.

¹² External Financing: Financing from non-domestic sources towards the implementation of IHR capacities.

¹³ Relevant sectors include human health, animal health, agriculture, disaster management, food safety, livestock, fisheries, trade, international transport/points of entry (PoEs), emergency services, environment, finance, chemical safety, radiation safety, labour, education, foreign affairs, civil society, other sectors.

Level	P2.2. Financial resources for public health emergency response	Choose one level
Level 1	Financial resources for responding to public health emergencies is not planned and identified. Funds are allocated and distributed in an ad hoc manner during a public health emergency	
Level 2	An emergency public financial resources mechanism exists or is pre-specified that can receive, distribute and use of funds for responding to public health emergencies, but activation and disbursement modalities are cumbersome and untimely	
Level 3	An emergency public financial resources mechanism for responding to public health emergencies is identified/specified for immediate mobilization when needed, at the national and intermediate levels for all the relevant sectors in advance of a public health emergency, and procedures enable rapid activation and disbursement	
Level 4	The emergency public financial resources mechanism for responding to public health emergencies is in place at national, intermediate and primary public health levels and allows for the timely distribution and execution of funds by all relevant sectors during a public health emergency	
Level 5	The emergency public financial resources mechanism for responding to public health emergencies in place, with an appropriate emergency contingency, at national, intermediate and primary public health levels, that allows for the timely execution of funds by all relevant sectors during a public health emergency	

Technical questions

P2.1. Financing for IHR implementation

1. What (if any) national plan exists to maintain and/or strengthen core capacities required for compliance with the IHR (e.g., national health sector plan, National Action Plan for Health Security (NAHPHS) or other), is it current, and has this plan been fully financed? What years does it cover?
2. What are the mechanisms within the health ministry and more broadly across the national government that are used to develop, revise, and approve budgets for implementation of the core capacities required for compliance with the IHR, including the IHF National Focal Point (NFP)? How far into the future are budgets constructed? How often are those budgets updated and who are the authorities responsible for financial planning and budgeting? How do relevant ministries engage in budget negotiation or advocate for resources?
3. How does the country ensure coordination of budget planning and development among different ministries and relevant departments? How does the budget align with national, regional and global priorities for implementation of the core capacities required under the IHR? Does a national authority coordinate different sectors in the implementation of IHR related activities, and the distribution and execution of their finances?
4. What proportion of national health budget is for IHR or health security-related activities? How does the government mobilize domestic financing to strengthen or maintain IHR related capacities?
5. What budget lines across relevant ministries are pertinent to each of the technical areas? What is the allocated budget and what period of time does it cover?

6. How do allocated budgets compare to the resource needs (including across relevant ministries/sectors and geographical areas) identified in national plans related to IHR and/or health security? What are the possible funding limitations?
7. Is real-time monitoring carried out during the response to a public health emergency that communicates the changing resource needs for the response to the entities that coordinate the distribution of finances between sectors, levels and geographical areas of the country?
8. What consideration is given to at-risk and vulnerable populations in the allocation and distribution of resources during a public health emergency response?
9. What proportion of the allocated budget is from domestic government sources? What proportion of the allocated budget is from donor sources? Is donor financing larger than the sum of domestic financing for these?
10. How are recurrent expenditures to strengthen or maintain IHR related capacities financed? Are expenditures mostly from domestic government sources or external sources?
11. Does budget formulation and structure support flexible spending and make budgets more responsive to sector needs? What, if any, are the extrabudgetary (i.e., supplemental appropriation or emergency funding) processes that allow agencies to receive additional funding when needed, such as when there is a public health emergency or special programme that requires additional financing beyond what was planned in the original budget?
12. How are intermediate level IHR related activities funded? If separate budgets are developed at the intermediate level, who are the authorities for those budgets and what mechanisms or guidelines are in place to support alignment among the various national and intermediate budgets aimed specifically at implementing the core capacities required to comply with the IHR?
13. What mechanisms exist to engage funding from the private sector (domestic or international) to strengthen or maintain IHR related capacities?
14. Is there a memorandum of understanding (MoU) or other agreement(s) with partners to finance IHR related capacities? If yes, for what activities and what is the proportion of financing from partners for IHR related functions?
15. Is there timely distribution of funds for all relevant ministries or sectors for the execution of activities to strengthen and maintain IHR capacities at all levels of the system (national and intermediate)? Are there delays in receiving funds? If so, what are the causes for any delays? Do delays impair implementation of activities?
16. Is there underspending or overspending of budgeted resources? What measures are in place to address problems arising from budget underspending and/or overspending?
17. What mechanisms are in place for monitoring and evaluating financial performance? What mechanisms are in place for budget transparency and accountability? Is expenditure reporting for IHR implementation for health and relevant ministries comprehensive, timely and publicly available?
18. Do these funds ensure full implementation of IHR capacities, including the functioning of the National IHR Focal Point? If not, what are the perceived barriers or bottlenecks (e.g., funding gaps, execution, etc.)? How is financial information for IHR implementation used to monitor, evaluate, and improve policy development and implementation?

P2.2. Financial resources for public health emergency response

1. How are resources managed by the public sector when a public health emergency occurs? How are resources contributed by external partners mobilized and disseminated?
2. Is there a mechanism which allows for resources to be distributed in a timely manner for operational readiness and responding to a public health emergency?
3. When a public health emergency occurs, does the country know where it can immediately access financing needed to respond to the emergency?
4. Does the country have an agreement set up with the multilateral emergency funding mechanisms?
5. Is there a public entity with resource-raising responsibilities for when a public health emergency occurs? How does this entity raise and coordinate external resources? Describe the last time this happened.
6. Does each relevant ministry or public entity have a budget allocation in place for activities related to responding to public health emergencies?
7. Are there exceptional mechanisms in place that allow for the rapid distribution and execution of funds allocated for public health emergencies, making it possible to quickly contract human resources, procure equipment, supplies and commodities, mobilize the distribution of both human resources and commodities, among other necessary emergency response interventions when needed?
8. Are there exceptional mechanisms in place that allow for funds to be reassigned to private sector or nongovernmental actors?
9. How does the country ensure coordination and allocation of funding related to response to public health emergencies? Is there a national authority that provides oversight regarding the allocation, execution and monitoring of financing in response to a public health emergency, coordinates the interventions of sectors involved in the response, and executes and accounts for funds related to these?
10. Is real-time monitoring carried out during the response to a public health emergency that communicates the changing resource needs for the response to the entities that coordinate the distribution of finances between sectors, levels and geographical areas of the country?
11. What consideration is given to at-risk and vulnerable populations in the allocation and distribution of resources during a public health emergency response?
12. Are procedures in place that allow for rapid re-distribution of funds and resources between sectors, levels or geographical areas of the country, with change in requirements for responding to a public health emergency over time?

Documentation or evidence for level of capability:

- domestic budget;
- external mobilized funds;
- medium-term expenditure frameworks, medium-term development plans;
- legislation, regulations, policies and financial plans related to disease control, IHR, etc.;
- assessment or evaluation reports of legislation, regulations policies or plans;
- any other legislation, regulations and/or policies pertinent to biological, chemical and radiological hazards from relevant sectors.

P3. IHR COORDINATION, NATIONAL IHR FOCAL POINT FUNCTIONS¹⁴ AND ADVOCACY¹⁵

Targets: Multisectoral/multidisciplinary approaches through national partnerships that allow efficient, alert and response systems for effective implementation of the IHR Coordinate nationwide resources, including sustainable functioning of a National IHR Focal Point – a national centre for IHR communications which is a key obligation of the IHR – that is accessible at all times. States Parties provide WHO with contact details of National IHR Focal Points, continuously update and annually confirm them. Timely and accurate reporting of notifiable diseases, including the reporting of any events of potential public health significance according to WHO requirements and consistent relay of information to FAO and OIE. Planning and capacity development are undertaken and supported through advocacy measures to ensure high-level support for implementation of IHR.

As measured by: (1) Establishment of a functional multisectoral and multidisciplinary mechanism for the coordination and integration of relevant sectors in the implementation of IHR and to respond to any public health events. (2) Establishment of a system¹⁶ to report potential public health events of international concern to WHO, and to meet the needs of other official reporting systems, such as OIE-World Animal Health Information System (WAHIS). (3) Planning and ongoing capacity development efforts with establishment and effective advocacy mechanisms for implementation of IHR. (4) Regular testing of the mechanism through exercises and subsequent improvement of arrangements and procedures.

Desired impact: A mechanism for multisectoral/multidisciplinary coordination, communication and partnerships to detect, assess and respond to any public health event or risk. A National IHR Focal Point that is accessible at all times to communicate with the WHO IHR Regional Contact Points and with all relevant sectors and other stakeholders in the country. The National IHR Focal Points, the OIE Delegate and WAHIS NFP will have access to a toolkit of best practices, model procedures, reporting templates, and training materials to facilitate rapid (within 24 hours) notification of events that may constitute a potential public health emergency of international concern (PHEIC) to WHO and listed diseases to OIE, as well as be able to respond rapidly (within 24/48 hours) to communications from these organizations. High-level support for implementation of IHR.

¹⁴ See National IHR Focal Point guide: Designation/establishment of National IHR Focal Points (<https://www.who.int/publications/m/item/designation-establishment-of-national-ihr-focal-points>, accessed 16 April 2022).

¹⁵ Advocacy for development is a combination of social actions designed to gain political commitment, policy support, social acceptance and systems support for a particular goal or programme. It involves collecting and structuring information into a persuasive case; communicating the case to decision-makers and other potential supporters, including the public, through various interpersonal and media channels; and stimulating actions by social institutions, stakeholders and policy-makers in support of the goal or programme (https://apps.who.int/iris/bitstream/handle/10665/70051/HED_92.4_eng.pdf, accessed 1 December 2021).

¹⁶ Existence of protocols, processes, regulations and/or legislation governing reporting processes for multisectoral coordination in response to PHEIC, to WHO and to the OIE or relevant zoonotic diseases.

Information for national self-assessment, planning, development, strengthening and maintenance of IHR capacities. National IHR Focal Point play and important role in dissemination of information to, and consolidating inputs from, relevant sectors of the administration of the State Party, including those responsible for surveillance and reporting, point of entry, public health services, clinics and hospital and other government departments (Article 4).

Level	P3.1. National IHR Focal Point functions	Choose one level
Level 1	The terms of reference describing the roles and responsibilities of the established National IHR Focal Point are not in place or under development and represented by one individual who is entirely familiar with the mandatory NFP functions under the IHR but lacks the authority, capacity and resources to effectively carry out these functions, including the around-the-clock availability	
Level 2	National IHR Focal Point is a designated centre and has a duty officer system to ensure availability at all times for urgent communications with WHO but legal, normative and institutional instruments and arrangements, including terms of reference describing the roles and responsibilities, are insufficient to communicate effectively with all levels and relevant sectors of the State Party's administration	
Level 3	National IHR Focal Point is a designated centre and has a clear legal and governmental mandate, with terms of reference describing the roles and responsibilities, is sufficiently organized, resourced and available at all times to communicate with WHO, but intersectoral collaboration and communication is inadequate to consolidate surveillance information or to obtain clearance from decision-makers in other domestic sectors	
Level 4	National IHR Focal Point is a centre sufficiently organized, resourced and positioned within the government with levels of authority and institutional arrangements and instruments to access the relevant information sources and decision-making level within the national surveillance and response system	
Level 5	National IHR Focal Point is a centre appropriately organized, positioned, trained and equipped with adequate levels of authority, efficient communication channels as well as administrative, human, technological, and financial resources to meaningfully engage with all relevant sectors and carry out the function as by IHR provisions and its functioning is exercised, reviewed, evaluated and updated on a regular basis and actions have been taken to strengthen and maintain its capacities	

Level	P3.2. Multisectoral coordination mechanisms ¹⁷	Choose one level
Level 1	Multisectoral coordination mechanisms for IHR implementation are not in place or under development. Multisectoral coordination activities occur in ad hoc basis	
Level 2	Multisectoral coordination mechanisms for IHR implementation are developed but not disseminated. Multisectoral coordination activities occur in ad hoc basis	
Level 3	Multisectoral coordination mechanisms for IHR implementation are in place, disseminated and are being implemented at the national level	
Level 4	Multisectoral coordination mechanisms for IHR implementation are in place, disseminated and are being implemented at national and intermediate levels	
Level 5	Multisectoral coordination mechanisms for IHR implementation are being implemented at all levels, and are exercised, reviewed, evaluated and updated on a regular basis	

¹⁷ Multisectoral coordination mechanisms include strategic frameworks, guidelines, procedures and standard operating procedures (SOPs), and plans.

Level	P3.3. Strategic planning for IHR, preparedness or health security	Choose one level
Level 1	A national action plan for IHR, preparedness or health security ¹⁸ is not available or is under development	
Level 2	A national action plan for IHR, preparedness or health security is developed but not being implemented	
Level 3	A national action plan for IHR, preparedness or health security is developed and being implemented, but there is no routine monitoring or updating of activities. Decision-makers in government and/or legislative bodies at the national level are sensitized ¹⁹ to IHR and/or health security on an ad hoc basis	
Level 4	A national action plan for IHR, preparedness or health security is implemented, activities include multiple sectors and activities are monitored and updated in the last two years. The plan and activities are updated based on assessments of capacity, such as the JEE or SPAR Decision-makers in government and/or legislative bodies at the national level are sensitized and systematically engaged in IHR, the national plan for IHR, and health security issues	
Level 5	A national action plan for IHR, preparedness or health security is implemented, activities are monitored and updated at least annually based on a risk assessment, exercises (e.g., Simulation Exercise (SimEx ²⁰)) and lessons learned from real-world events (e.g., IARs ²¹ or AARs ²²). Decision-makers in government and/or legislative bodies at the national and intermediate levels are sensitized to and systematically engaged in IHR, the national plan for IHR, and health security issues	

Contextual questions

1. How does the country coordinate with different ministries, including government agencies and other relevant sectors for health emergencies (before, during and after an emergency)?
2. What are the efforts made to strengthen the functions of the NFP?
3. How are health emergency plans including national actions plans developed and implemented to strengthen IHR capacities?
4. Is there a national strategy for advocating for strengthening and development IHR capacities?

¹⁸ There are different types of plans, such as a plan for coordinating emergency preparedness measures, which includes multisectoral, multihazard emergency response plans, readiness and/or contingency plans and business continuity plan for specific hazards or risk scenarios. Plans should be multisectoral, multidisciplinary and interoperable. These plans should be linked to a hazard-specific plan such as for chemical events or radiation emergencies. There should be a chemical/radiation event response plan describing procedures, roles, responsibilities and requirements to ensure an adequate response to a chemical release with the aim of minimizing the impact of the release on human health and the environment.

¹⁹ Sensitization: At the country level, advocacy through a set of coordinated interventions including sensitization broadly seeks to ensure that national governments remain strongly committed to IHR and national action plans for IHR, and to mobilize necessary resources.

²⁰ A SimEx can help develop, assess and test functional capabilities of emergency systems, procedures and mechanisms to be able to respond to outbreaks or public health emergencies. See definition of "SimEx" in the Glossary (for further information see <https://www.who.int/publications-detail-redirect/WHO-WHE-CPI-2017.10>, accessed 3 November 2021).

²¹ See definition of "Intra-Action Review or IAR" in the Glossary (for further information see <https://apps.who.int/iris/handle/10665/341029>, accessed 3 November 2021).

²² An After Action Review or AAR provides an opportunity to review the functional capacity of public health and emergency response systems and to identify practical areas for continued improvement. See definition of "AAR" in the Glossary (for further information see <https://www.who.int/publications/i/item/WHO-WHE-CPI-2019.4>, accessed 3 November 2021).

Technical questions

P3.1. National IHR Focal Point functions

1. Resources, structure and expertise
 - a. Describe the organizational structure of the NFP centre/office.
 - b. What are the terms of reference and the day-to-day responsibilities of the NFP?
 - c. Do you have a duty officer system in place to ensure the NFP is accessible at all times (24/7/365) for urgent communications to WHO?
 - d. Is the NFP centre/office equipped with adequate administrative, human, technological and financial resources to carry out the NFP communication functions?
 - e. Does the NFP centre/office have the capacity to consolidate surveillance information from all relevant sectors/bodies of government?
 - f. Does the NFP have the necessary content expertise to discuss a notifiable event with WHO IHR Contact Point?
 - g. Is there a plan being implemented at your NFP to support the continuous development and learning of staff working in the NFP?
2. Institutional connectivity
 - a. Describe the location of the NFP centre/office within the national governmental structure.
 - b. Does the positioning of the NFP centre/office ensure to access the relevant information sources and decision-making level, including senior government officials within the national surveillance and response system?
 - c. What operational procedures and working arrangements are in place to disseminate information from WHO to relevant sectors of the administration and to consolidate input from these sectors in a timely fashion, including relevant national bodies outside the health sector such as zoonotic, foodborne, chemical and radio-nuclear hazards?
 - d. Does the NFP regularly engage with other sectors for risk assessment and notification of national public health events and any events of potential public health significance irrespective of source?
 - e. What are the internal procedures before notifying an event to WHO?
 - f. How long does it usually take from the start of the notification assessment for public health events until the actual notification if an event is deemed notifiable?
 - g. To what extent do difficulties in communicating information between the NFP and other sectors in the government compound the challenge of obtaining intersectoral approval and submit reports to WHO in a timely fashion?
 - h. Describe the most recent exercise (or event) that tested the country's systems to identify and report an event to WHO.
3. Legal and governmental mandate
 - a. Does legislation or administrative arrangements enable the NFP to obtain official clearance, including from senior government officials regarding urgent communications with WHO within the time limits established under the IHR?
 - b. Is the NFP provided with the legal authority to access all relevant information sources and decision-makers, including ministries and agencies in related sectors outside of health?

- c. Are the NFP functions aligned and integrated in the policy of the State Party's administration?
4. Does the National IHR Focal Point have measures to ensure inclusion of all of society (e.g., including representation across gender, ethnic, religious groups, etc.) within its staff?

P3.2. Multisectoral coordination mechanisms¹⁷

1. Are key members of the National IHR Focal Point able to communicate effectively, in writing and verbally, with WHO and other international experts for reporting purposes?
2. Is there an updated contact directory including all members of the National IHR Focal Point?
3. Are there mechanisms in place to ensure that a whole-of-government approach can be taken?
5. Are there examples of effective coordination within the relevant ministries on events that may constitute a public health event or risk of national or international concern?
6. Are SOPs or guidelines available for coordination between the National IHR Focal Point and other relevant actors?
7. Have functional mechanisms for multisectoral collaboration that include clinical services, animal and human health surveillance units, communication units and laboratories been established?
8. Is there timely and systematic information exchange between national, intermediate and primary offices, animal surveillance units, laboratories, human health surveillance units and other relevant sectors regarding potential zoonotic risks and urgent/emerging zoonotic events?
9. Is there a functional mechanism for multisectoral collaboration with other relevant sectors to accelerate targeted operational readiness actions for imminent threats?
10. Is there a functional mechanism for multisectoral collaboration with other relevant sectors for other IHR related hazards, such as chemical and radiation sectors?
11. Is there a coordination mechanism for detecting and responding to deliberate and/or accidental events occurring for example in mass gatherings?
12. Is a multisectoral, multidisciplinary coordination and communication mechanism updated and tested regularly?
13. Are action plans developed to incorporate lessons learned from multisectoral/multidisciplinary coordination and communication mechanisms?
14. Are the updates of IHR implementation shared with other relevant sectors?

P3.3. Strategic planning for IHR, preparedness or health security

1. Does the country have plans and mechanisms for coordinating the development and implementation of multisectoral multihazard emergency preparedness measures?
 - a. Does the national plan and mechanisms for coordinating emergency preparedness have a multihazard whole-of-society approach involving all relevant sectors?
 - b. Does the health sector have a multihazard plan for coordinating emergency preparedness measures that is integrated in the multisectoral plan? Is emergency preparedness included in plans for strengthening national emergency and disaster risk management?

- c. Does the national plan include:
 - i. strategic emergency risk assessment, taking into considerations of planned mass gathering events,
 - ii. capacity assessments and resource mapping,
 - iii. multihazard emergency response planning (see below for specific questions),
 - iv. contingency planning for specific hazards or risk scenarios,
 - v. plans for developing emergency response capacities, including emergency operation centres (EOCs),
 - vi. plans for developing surge capacity,
 - vii. business continuity planning,
 - viii. training, and
 - ix. exercising.
- d. Does the plan address emergency preparedness for IHR relevant hazards, including those that have the potential to cause PHEICs? Does the plan address emergency preparedness for all types of hazards that the country faces?
- e. Does the plan address the 1) processes to guide decision-making for mass gatherings, and the measures to reduce risk associated with any such events? 2) establishment of policies and practices for the organization of mass gatherings (e.g., restrictive measures to regulate events, SOPs to decide whether events should proceed or not; 3) adoption of consultative, transparent approaches open to all relevant stakeholders to inform decision-making for mass gatherings; 4) feedback mechanism to refine policies and practices on mass gatherings on the basis of lessons learned and identified best practices?
- f. Does the plan clearly assign roles and responsibilities for emergency preparedness to specific government units of all relevant sectors and PoEs?
- g. Are there plans for strengthening emergency preparedness at intermediate and primary public health response levels?
- h. Are there dedicated human resources and regular budget funding for emergency preparedness measures by public health, animal health and other relevant sectors? Are human resources briefed and trained in their role and responsibilities?
- i. When was the national plan developed? When was the last update?
2. Does the country have multisectoral multihazard emergency response plans?
 - a. Does the national health emergency response plan have a multihazard whole-of-society approach involving all relevant sectors? When was the plan developed? When was the plan last updated?
 - b. Is the health sector's emergency response plan integrated in the multisectoral plan?
 - c. Is the national multisectoral multihazard response plan based on strategic emergency risk assessment, capacity assessments and resource mapping?
 - d. Does the emergency response plan incorporate IHR relevant hazards, including those that have the potential to cause PHEICs? Does the response plan address all types of emergencies that the country faces?

- e. Have contingency plans been developed for high priority risks/specific events? Are they based on strategic risk assessments and resource mapping?
 - f. Does the plan incorporate SOPs that describe the procedures for activating and implementing the plan for all key response management and technical functions in relevant sectors (such as health, emergency management, animal health, chemicals, radiation and any mass gathering events)?
 - g. Are there emergency or contingency funds readily available to support response by public health, animal health and other relevant sectors?
 - h. Does the plan analyse available resources (such as human resources, equipment, facilities) in relation to the need for regular operation mode, acute emergencies and protracted crises?
 - i. Is a surge plan included in the national multisectoral multihazard response plans for scaling up response operations?
 - j. What is the mechanism to address resource gaps? Does the plan include SOPs for deployment of surge capacity?
 - k. Is surge capacity available to respond to emergencies, including public health emergencies of national and international concern?
 - l. Are there multihazard emergency response plans at intermediate and primary levels?
 - m. Does the national emergency response plan describe the procedures and plans to relocate or mobilize resources from national and intermediate levels to support response at the primary public health response level? What are those procedures and plans?
 - n. Does the national emergency response plan include logistics? What resources are available for logistics?
 - o. Has the national response plan been implemented in a real event or tested in a SimEx, through a whole-of-society approach? When was the last time it was used? Was the plan updated as a result of an AAR or other form of evaluation?
 - p. Have intermediate and primary level multihazard emergency response plans been implemented in a real event or tested in a SimEx? When was the last time these were used? Were plans updated as a result of an AAR or other form of evaluation?
 - q. Have national contingency plans been implemented in a real event or tested in a SimEx? When was the last time such contingency plans were tested? Were the plans updated as a result of an AAR or other form of evaluation?
 - r. What are the key findings of the AAR or evaluations of emergency response operation or SWOT (strengths, weaknesses, opportunities, threats) analysis?
3. Is there an advocacy strategy for IHR implementation? If yes,
 - a. Is the advocacy strategy disseminated at all levels of health system?
 - b. Does the advocacy strategy capture whole-of-society and whole-of-government stakeholders?
 - c. How is the advocacy strategy disseminated and what type of channels are used?
 - d. Is there a monitoring and evaluation mechanism for assessing the level of implementation of the advocacy strategy?

- e. When is the last time the advocacy strategy was tested, reviewed and updated?
If no,
 - i. Is there plan to develop advocacy strategy?
 - ii. How advocacy activities for the IHR implementation are conducted?
 - iii. How other relevant stakeholders could access information of IHR?
4. If an advocacy strategy is under development, then does the advocacy strategy capture the following:
 - a. Is it developed with a whole-of-society approach?
 - b. Does it have dissemination plan and development materials?
 - c. Is there a plan to test and review the draft strategy?

Documentation or evidence for level of capability:

- OIE PVS Pathway reports;
- reports to WHO governing bodies on IHR implementation (such as reports of the Executive Board and World Health Assembly);
- legislation, protocols or other policies related to reporting to WHO;
- any plans that have been drafted or other evidence that covers response to possible biological, chemical and radiological events;
- WHO IHR Annex 2;
- OIE Terrestrial Animals and Health Code – Section 1;
- IHR reports to the World Health Assembly;
- legislation, protocols or other policies related to reporting to WHO and OIE;
- reports from WAHIS.

References:

- Annex 2 of the International Health Regulations (2005). World Health Organization [website] ([https://www.who.int/publications/m/item/annex-2-of-the-international-health-regulations-\(2005\)](https://www.who.int/publications/m/item/annex-2-of-the-international-health-regulations-(2005)), accessed 16 March 2022).
- Terrestrial animal health code (2017). Volume 1. General provisions. World Organisation for Animal Health [website] (<https://www.oie.int/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/>, accessed 23 March 2022).

P4. ANTIMICROBIAL RESISTANCE (AMR)²³

Target: A functional system in place for the national response to combat AMR with a One Health approach, including:

- a. Multisectoral work spanning people, animals, food, plants and the environment (in water, soil and air). This comprises developing and implementing a national action plan to combat AMR, consistent with the Global Action Plan (GAP) on AMR.
- b. Surveillance capacity for AMR and antimicrobial use at the national level, following and using internationally agreed systems such as the WHO Global AMR Surveillance System (GLASS)²⁴ and the OIE global database on use of antimicrobial agents in animals.
- c. Prevention of AMR in health care facilities, food production and the community, through infection prevention and control measures.
- d. Ensuring appropriate use of antimicrobials, including assuring quality of available medicines, conservation of existing treatments and access to appropriate antimicrobials when needed, while reducing inappropriate use.

The JEE should also review and validate the country's self-assessed response to the global monitoring survey on AMR.

As measured by: (1) Multisectoral national action plan to combat AMR has been produced and made public. (2) Implementation of the national action plan/sector plans on AMR, with monitoring and yearly reporting on progress (including reporting to the international level).

Desired impact: Decisive and comprehensive action to prevent the emergence and spread of AMR, which poses a substantial and evolving threat to disease control and health security. Countries will (in line with the GAP) increase awareness of AMR risks and how to respond to them; strengthen surveillance and laboratory capacity; enhance infection prevention and control activities; ensure uninterrupted access to essential antimicrobials of assured quality; regulate and promote the appropriate use of antimicrobials in human medicine, veterinary medicine, food production and other fields as appropriate; and support initiatives to foster the development and appropriate use of new antimicrobial agents, vaccines and diagnostic tools.

²³ Since AMR needs to be addressed as a multisectoral issue, the first attribute (4.1) asks about progress with multisectoral coordination, including developing and implementing a national AMR action plan. In order to make the assessment and rating manageable, the attributes for scoring are focusing on selected aspects of the response to AMR: surveillance of resistance (P4.2), prevention of MDROs (P4.3), optimal the use of antimicrobial medicines in human health (P4.4), and optimal use of antimicrobial medicines in animal health and agriculture (P4.5). The assessment of capacities for AMR control should be completed twice for attribute 4.2, as capacities should be separately evaluated in the human health sector and the animal food production sector (terrestrial and aquatic). Progress on infection prevention and control, another important aspect to the response to AMR, is rated separately in section R4. Progress on addressing other aspects of the response to AMR (including other sectors) may also be considered during the JEE, but these aspects are not explicitly rated. Where there are several criteria for a score, the country is expected to meet all these criteria, as well as the criteria for lower scores. The final score should be based on the lower of the scores for the human and animal health sectors. In the human health sector, the assessment should review bacterial resistance to antibiotics. Viral, other non-bacterial pathogens and vector resistance are out of scope, unless integrated in national policies, standards or guidelines. Systems for tracking human tuberculosis resistance are managed through tuberculosis programmes. For food production aspects, all antimicrobials are included.

²⁴ GLASS is a collaborative effort to standardize AMR surveillance by supporting to strengthen knowledge through surveillance and research, and to continue filling knowledge gaps with the aim to inform strategies at all levels.

Level	P4.1. Multisectoral ²⁵ coordination on AMR	Choose one level
Level 1	No multisectoral national action plan for AMR and no formal multisectoral governance or coordination mechanism on AMR exists	
Level 2	Multisectoral national AMR action plan under development; multisectoral coordination mechanism has been established, with government leadership	
Level 3	Multisectoral national AMR action plan developed; multisectoral coordination mechanism is functional with clear terms of reference and regular meetings	
Level 4	Multisectoral national AMR action plan approved and reflects GAP objectives, with a costed operational plan being implemented	
Level 5	Multisectoral national AMR action plan has identified funding sources, is being implemented and has monitoring in place, and is updated and evaluated regularly	

Level	P4.2. Surveillance of AMR ^{26,27}	Choose one level
Level 1	No or limited capacity for generating, collating, and reporting data (antibiotic susceptibility testing and accompanying clinical and epidemiological data)	
Level 2	AMR data are collated locally for common pathogens in hospitalized and community patients ²⁸ , but data collection may not use a standard approach and lacks national coordination and/or quality management	
Level 3	AMR data are collated nationally for common pathogens, but national coordination and standardization are lacking	
Level 4	There is a standardized national AMR surveillance system collecting data on common pathogens in hospitalized and community patients, with an established network of surveillance sites, designated national reference laboratory for AMR and a national coordinating centre (NCC) producing reports on AMR	
Level 5	The national AMR surveillance system's data is analysed, interpreted and reported together with antimicrobial consumption and/or use data for human health, and analysis of similar data across sectors (human and animal health and agriculture) is attempted	

²⁵ Multisectoral indicates a One Health (refer to Glossary) approach representative of, at least, human, animal, crops and food safety aspects.

²⁶ This assessment focuses on surveillance of AMR levels in human health and animal food production sectors. Surveillance/monitoring of antimicrobial use in humans and animals are not part of the rating. While this surveillance is important to national AMR action plans, they are covered by other assessments. (Refer to relevant Tripartite AMR Country Self-Assessment Survey (TrACSS), FAO Atlas and PVS indicators).

²⁷ Includes reporting to GLASS-EAR (Emerging Antimicrobial Resistance Reporting) on early detection of AMR reporting

²⁸ Pathogens currently included in GLASS-AMR are: *Acinetobacter spp.*, *E. coli*, *Klebsiella pneumoniae*, *Neisseria gonorrhoeae*, *Salmonella spp.*, *Shigella spp.*, *Staphylococcus aureus*, and *Streptococcus pneumoniae*.

Level	P4.3. Prevention of multidrug resistant organism (MDRO)	Choose one level
Level 1	Priority MDRO pathogens (phenotypes and genotypes) have not been identified by national authorities, and MDRO pathogens are not detected	
Level 2	National strategy or guidance for MDRO containment exists and includes colonization screening priority MDRO pathogens (phenotypes and genotypes) have been identified by national authorities. Some health facilities can detect priority MDRO pathogens based on laboratory data	
Level 3	Selected health facilities have access to MDRO phenotype confirmation. Facilities notify national levels when priority MDRO pathogens are detected	
Level 4	All health facilities ²⁹ have access to MDRO phenotype confirmation. Facilities notify national levels when priority MDRO pathogens are detected in a timely manner. Responses are tracked and supported at the national level	
Level 5	Functional system in place to rapidly communicate and track the detection, confirmation and notification of novel or priority MDROs within hospitals and to national levels. All hospitals are able to launch response activities to priority MDRO pathogens in a timely manner. Facilities regularly communicate pertinent MDRO data to local referral networks to inform prevention/containment efforts	

Level	P4.4. Optimal use of antimicrobial medicines in human health	Choose one level
Level 1	No or weak national policy and/or regulations on appropriate use, availability, quality and use of antimicrobials in human health	
Level 2	National policy and regulations promoting appropriate antimicrobial use/antimicrobial stewardship activities are developed for the community and health care settings	
Level 3	Guidelines for appropriate use of antimicrobials are available and antimicrobial stewardship programs ³⁰ are established in some health care facilities. The "Access, Watch and Reserve" (AWaRe) ³¹ classification of antibiotics is adopted in the national essential medicines list	
Level 4	Guidelines and practices to enable appropriate use of antimicrobials are implemented in health care facilities nationwide. Functioning AMR stewardship programs in all major health care facilities. Monitoring of antibiotic consumption is being performed and based on the AWaRe classification of antibiotics	
Level 5	Guidelines on optimizing antibiotic use are implemented for all major syndromes and data on use is systematically fed back to prescribers. The AWaRe classification of antibiotics is incorporated into antimicrobial stewardship strategies. Robust national monitoring of antibiotic consumption is being performed	

²⁹ Smaller facilities may not need testing capacities themselves but will need referral systems.

³⁰ Stewardship program practices may include: uninterrupted access to high-quality medicines to treat bacterial infections; measurements of antimicrobial use; availability of cultures and antibiograms for clinical decision-making; regular updates to local antibiograms and genetic analyses to inform treatment decisions; and audit with feedback to prescribers of antibiotics to encourage appropriate use. In health care, these are often referred to as antimicrobial stewardship programmes.

³¹ The AWaRe Classification of antibiotics is a tool to support antibiotic stewardship efforts at local, national and global levels, antibiotics are classified into three groups, access, watch and reserve, taking into account the impact of different antibiotics and antibiotic classes on AMR, to emphasize the importance of their appropriate use.

Level	P4.5. Optimal use of antimicrobial medicines in animal health and agriculture ³²	Choose one level
Level 1	No national policy or legislation regarding the quality, safety and efficacy of antimicrobial products and antimicrobial pesticides, and their distribution, sale or use in other sectors	
Level 2	National legislation covers some aspects of national manufacture, import, marketing authorization, control of safety, quality and efficacy and distribution of antimicrobial products and/or antimicrobial pesticides	
Level 3	National legislation covers all aspects of national manufacture, import, marketing authorization, control of safety, quality and efficacy and distribution of antimicrobial products and/or antimicrobial pesticides	
Level 4	The national regulatory framework for antimicrobial products and/or antimicrobial pesticides incorporates all the elements included in the related international standards on responsible and prudent use of antimicrobials (e.g., OIE Terrestrial and Aquatic Codes, Codex Alimentarius) according to animal species, plant type/species and/or production sector	
Level 5	Enforcement processes and control are in place to ensure compliance with legislation on the use of antimicrobial products and/or antimicrobial pesticides	

Technical questions

P4.1. Effective multisectoral coordination on AMR and the national action plan

1. How is multisectoral work on AMR organized? Is there an AMR multisectoral coordination mechanism with defined terms of reference and reporting/accountability mechanisms? How often has it met and who attends the meetings?
2. What is the status of the national action plan on AMR? Has it been approved formally? Are there several plans or one integrated plan? Are food, agriculture and environment represented in addition to human and animal health?
3. Does the national action plan consider the main areas identified in the GAP on AMR – particularly raising awareness, training/education on AMR, surveillance of resistance and use, prevention of infections and optimizing the use of antimicrobials in both human and veterinary/agriculture sectors?
4. Is there a costed operational plan and budget for implementation of the national action plan? How is funding for planned activities organized? Is there adequate investment/funding available to support implementation?
5. Has progress towards the objectives/goals laid out in the plan been monitored yet? Has there been progress towards implementation? Have any barriers and/or challenges to implementing the national action plan been identified?
6. How does the plan recognize the roles and responsibilities of multiple jurisdictions and levels of government?

³² For the animal food production sectors, the focus of attribute P4.5 is on infection prevention that promotes good animal husbandry and aims to reduce the use of antimicrobials in farmed animals and food production. Infection prevention/good animal husbandry plans in the animal food production sectors tend to include promotion of farm hygiene, a vaccination programme, biosecurity measures, appropriate feeding and clean water, and handling of sick animals, to prevent the transmission of resistant bacteria to humans and other animals. The assessment should review bacterial resistance to antibiotics. Viral, other non-bacterial pathogen and vector resistance are out of scope, unless integrated in national policies, standards or guidelines. Systems for tracking human tuberculosis resistance are managed through tuberculosis programmes.

P4.2. AMR surveillance

1. What is the laboratory capacity to detect, isolate and identify antimicrobial-resistant organisms from humans, animals, food and the environment?
2. Is there a national plan/system for surveillance of infections caused by antimicrobial-resistant pathogens? Is there monitoring of the surveillance system to inform regular plan reviews and updates?
3. How many hospitals (percentage of total number of hospitals) are (will be) sites for surveillance of infections caused by antimicrobial-resistant pathogens among humans? Which specimens, pathogens and antimicrobials do/will they cover? How does this compare with the plan for enhancing surveillance in hospitals? Are denominator data (such as number of patients with a specific disease or syndrome, number of patients with samples taken) collected?
4. How will surveillance be established/what is in place in the community and in outpatient settings?
5. How many farms (percentage of total number of farms) with livestock are (will be) sentinel sites for surveillance of infections caused by antimicrobial resistant pathogens in livestock?
 - a. What animal species are covered by AMR surveillance?
 - b. What zoonotic bacterial species are covered by AMR surveillance?
 - c. What veterinary pathogens are covered by AMR surveillance?
 - d. Where is AMR surveillance conducted in the food chain? On farms, slaughtered animals, retail meat?
 - e. Describe the sampling scheme.
 - i. Number of sampled sites and how they are chosen, such as number of farms (randomly selected, purposively selected, convenience sample, census); number of abattoirs (how are these selected?); number of retail establishments; number/type of participating clinical laboratories.
 - ii. How were the number and types of isolates determined?
6. Is there at least one national reference laboratory for AMR? How well is it (are they) functioning and supporting surveillance sites? Does it routinely conduct confirmatory or additional testing on referred isolates?
7. Does the national reference laboratory receive samples from clinics, hospitals, veterinary diagnostic laboratories and environmental sources (i.e. water, soil, effluents)?
8. What reports are available on levels of resistance in pathogens relevant to animal food production and humans? Are there national reports on impact/burden of AMR available? If routine reports are not available, what studies have been done or are underway?
9. Is there a NCC established that is producing reports on resistance levels?
10. What types of reports are generated? Who receives these reports? Are reports sent to GLASS? Are reports accessible to other stakeholders (such as FAO, OIE)?
11. Does surveillance of AMR integrate data from both human and animal health sources?
12. How representative is the reported AMR data of the community and across geographical areas and settings?

13. How has the data from AMR surveillance been used? Has it been considered by national policy-makers? Have local or national treatment guidelines been adapted? Have any voluntary or legislative policies been put into place based on the surveillance data?
14. Is antimicrobial use and/or consumption monitored for humans, animals and food crops? If yes, how?
15. Does the country provide data to the OIE's global database on antimicrobial agents used in animals?
16. Is there surveillance of resistant pathogens contamination occurring via effluent discharges? At what levels (pharmaceutical industry sources, health clinics, intensive animal feeding or livestock sites) are effluents monitored?
17. Is the pharmaceuticals production industry addressed in the national action plan? If yes, how?

P4.3. Prevention of MDRO transmission in health care facilities

1. Is there a standardized definition of MDRO used in the country by all health care facilities? If yes, describe.
2. Are there standard antibiotic panels for aspartate aminotransferase testing and reporting for the detection of MDRO in use across health care facilities? If yes, describe.
3. Which containment strategies are used at health care facilities when a suspected MDRO outbreak is detected?
4. Is there involvement of the national authorities and national reference laboratory to assist on MDRO-related events?
5. Is guidance on timely detection, reporting, risk assessment and monitoring of novel and emerging resistance available in the country?
6. Are the health care facilities (laboratories serving the facilities) have a capacity to detect unlikely, unusual, and clinically and/or epidemiologically important findings? Does this include deviations from expected resistance in specific bug-drug combinations? resistance patterns not previously reported or only rarely reported to date? predefined "exceptional phenotypes" in accordance with expert rules?
7. Is (are) there designated expert laboratory(ies) that provide(s) confirmatory testing for unusual findings?
8. Are infection prevention and control (IPC) strategies implemented in health care facilities to prevent and control MDRO infection or colonization? Do they include hand hygiene? surveillance (in particular, for carbapenem-resistant Enterobacteriaceae and other MDRO of special concern)? contact precautions? patient isolation (single room isolation or cohorting)? environmental cleaning?
9. If surveillance cultures for asymptomatic colonization with MDRO is recommended/performed, are there indications defined, based on local epidemiology, risk assessment and resource considerations? Are patient populations to be considered for such surveillance clearly defined?

P4.4. Optimize use of antimicrobial medicines in human health

1. Is there national guidance on appropriate use of antibiotics in humans?
 - a. Has the appropriateness of antibiotic use been studied? Are studies planned, such as on quality of prescribing?
 - b. Is there a national selection mechanism or committee for recommended antibiotics?
 - c. Are there antibiotic guidelines based on national/local antibiograms, are they regularly updated? Give examples.
 - d. How many centres monitor or audit adherence to national guidance on appropriate antibiotic use?
 - e. Are the latest guidelines integrated in pre-service training and in continuing education courses?
2. Is a prescription required for antibiotic use in humans? What evidence is there that this applies in practice in public and private sectors?
3. Does a national plan or policy for antimicrobial stewardship exist? How far has it been implemented?
4. What measures (e.g., action on stock-outs) are in place to assure access to antimicrobials for those humans who need them?
5. Is testing of antimicrobial quality in place? Is there a mechanism or are there activities to identify substandard, spurious, falsely labelled, falsified and counterfeit antimicrobials? Are there penalties for counterfeit/substandard products and are these enforced?
6. Has the AWaRe classification been adopted into the national essential medicines list and/or formulary and/or antimicrobial stewardship policies and plans?

P4.5. Optimize use of antimicrobial medicines in human and animal health and agriculture

1. What are the national policies and regulations relating to appropriate use, availability and quality of antimicrobials for human and animal use?
2. Is there national guidance on appropriate use of antibiotics in humans?
 - a. Has the appropriateness of antibiotic use been studied? Are studies planned, such as on quality of prescribing?
 - b. Is there a national selection mechanism or committee for recommended antibiotics?
 - c. Are there antibiotic guidelines based on national/local antibiograms? Give examples.
 - d. How many centres monitor or audit adherence to national guidance on appropriate antibiotic use?
 - e. Are the latest guidelines integrated in pre-service training and in continuing education courses?
3. Is a prescription required for antibiotic use in humans? What evidence is there that this applies in practice in public and private sectors?
4. Does a national plan for antimicrobial stewardship exist in the hospital sector? How far has it been implemented?

5. What measures (e.g., action on stock-outs) are in place to assure access to antimicrobials for those humans/animals who need them?
6. Is a prescription required for antimicrobial use in animals (terrestrial, aquatic, feed industry)? When is a prescription not required? What happens in practice? Do farmers have access to veterinarians and other professionals who can advise/authorize an antimicrobial?
7. Is there a plan to strengthen prudent use or stewardship in animals? If yes, who participate and how is it monitored? Is it consistent with Codex and OIE guidelines? Have guidelines on prudent use been developed?
8. What is the national policy on use of antimicrobials for animal growth promotion? What are the next steps planned on those?
9. Is testing of antimicrobial quality in place? Is there a mechanism or are there activities to identify substandard, spurious, falsely labelled, falsified and counterfeit antimicrobials? Are there penalties for counterfeit/substandard products and are these enforced?

Documentation or evidence for level of capability:

- National action plan for AMR and/or plans for AMR detection/reporting, surveillance of AMR, monitoring antimicrobial consumption and use, IPC programmes in human health facilities, infection prevention and improved husbandry in livestock/food production, and plans to improve use and quality of antimicrobials (such as antimicrobial stewardship programmes).
- Monitoring reviews of progress with implementation of national action plan(s) and related plans.
- Country response to the global monitoring survey on AMR.
- OIE PVS Pathway reports.
- Minutes from meetings or outputs of the multisectoral coordination committee or group.
- Copy of reports measuring:
 - proportion of AMR pathogens among specimens or isolates;
 - results from participation in international external quality assessment (EQA) rounds of the national reference laboratory;
 - incidence of infections caused by AMR pathogens at sentinel sites (community and hospital acquired);
 - antimicrobial consumption levels or surveys of use (human and animal including medicated animal feed – terrestrial and aquatic);
 - proportion of facilities adhering to best practices for IPC including hand hygiene (if known);
 - mandatory farm quality assurance programmes that include antimicrobial use surveillance and stewardship information;
 - availability of antimicrobials (or stock-outs), hygiene supplies and water, sanitation and hygiene (WASH) in health facilities; and
 - percentage of antibiotics administered appropriately (if surveyed).
- Documentation of the review process, including participating agencies or sectors.

References:

- FAO, OIE and WHO. 2021. Monitoring global progress on antimicrobial resistance: Tripartite AMR Country Self-Assessment Survey (TrACSS) 2019–2020. Rome. (<https://www.fao.org/documents/card/en/c/cb3690en/>, accessed in 15 July 2021).
- AMR: A manual for developing national action plans. Geneva: World Health Organization, Food and Agricultural Organization of the United Nations and the World Organisation for Animal Health; 2016 (<https://www.who.int/publications/i/item/antimicrobial-resistance-a-manual-for-developing-national-action-plans>, accessed 1 February 2021).
- WHO Global Database for the Tripartite AMR Country Self-Assessment Survey (TrACSS). [website] Geneva: World Health Organization, Food and Agricultural Organization of the United Nations and the World Organisation for Animal Health; 2021 (<https://amrcountryprogress.org/>, accessed 23 November 2021).
- Tackling AMR together. Working paper 1.0: Multisectoral coordination. Geneva: World Health Organization; 2018 (<https://www.who.int/publications/i/item/tackling-antimicrobial-resistance-together-working-paper-1.0-multisectoral-coordination>, accessed 23 November 2021).
- Turning plans into action for AMR. Working paper 2.0: implementation and coordination. Geneva: World Health Organization; 2019 ([https://www.who.int/publications/i/item/turning-plans-into-action-for-antimicrobial-resistance-\(amr\)-working-paper-2.0-implementation-and-coordination](https://www.who.int/publications/i/item/turning-plans-into-action-for-antimicrobial-resistance-(amr)-working-paper-2.0-implementation-and-coordination), accessed 23 November 2021).
- WHO costing and budgeting tool for national action plans on antimicrobial resistance. Geneva: World Health Organization; 2021 (<https://who.int/teams/surveillance-prevention-control-AMR/who-amr-costing-and-budgeting-tool>, accessed 24 November 2021).
- Sharing FAO tools for veterinary laboratory assessment. [website] FAO. (https://www.fao.org/ag/againfo/programmes/en/empres/news_231216b.html, accessed 16 March 2022).
- National AMR surveillance systems and participation in the GLASS: A guide to planning, implementation and monitoring and evaluation. World Health Organization; 2016 (<http://apps.who.int/iris/bitstream/10665/251554/1/WHO-DGO-AMR-2016.4-eng.pdf>, accessed 16 March 2022).
- OIE data collection template. Paris: World Organisation for Animal Health; 2017 (http://www.oie.int/fileadmin/Home/eng/Our_scientific_expertise/docs/pdf/AMR/A_AMUse_Template_Final_2017.xls, accessed 16 March 2022).
- OIE standards and recommendations [factsheet]. Paris: World Organisation for Animal Health; 2016 (<https://www.oie.int/en/what-we-do/standards/>, accessed 23 March 2022).
- WHO Global action plan on antimicrobial resistance Geneva: World Health Organization; 2015 (http://apps.who.int/iris/bitstream/10665/193736/1/9789241509763_eng.pdf, accessed 16 March 2022).
- National Reference Laboratory: the primary function within the AMR surveillance system is to promote good microbiological laboratory practices, including adapting and disseminating microbiological methods, standards and protocols and to facilitate collaboration on all laboratory matters relating to AMR. For sample terms of reference see GLASS guide (GLASS: guide to uploading aggregated AMR data. Geneva: World Health Organization; 2016 <http://apps.who.int/iris/bitstream/10665/251740/1/WHO-DGO-AMR-2016.7-eng.pdf>, accessed 16 March 2022).

- NCC for AMR: an institution that has been designated by the national authorities to oversee the development and functioning of the national AMR surveillance system. The NCC will need a structure for surveillance coordination and data management and collaborate closely with both the National Reference Laboratory and surveillance sites. See GLASS guide (GLASS. Guide to uploading aggregated AMR data. Geneva: World Health Organization; 2016. <http://apps.who.int/iris/bitstream/10665/251740/1/WHO-DGO-AMR-2016.7-eng.pdf>, accessed 16 March 2022).
- GLASS guidance for national reference laboratories. Geneva: World Health Organization; 2020 (<https://www.who.int/publications/i/item/9789240010581>, accessed 23 November 2021).
- GLASS methodology for surveillance of national antimicrobial consumption. Geneva: World Health Organization; 2020 (<https://www.who.int/publications/i/item/9789240012639>, accessed 23 November 2021).
- Antimicrobial stewardship programmes in health care facilities in low- and middle-income countries. A practical toolkit. Geneva: World Health Organization; 2019 (<https://www.who.int/publications/i/item/9789241515481>, accessed 23 November 2021).
- WHO policy guidance on integrated antimicrobial stewardship activities. Geneva: World Health Organization; 2021 (<https://www.who.int/publications/i/item/9789240025530>, accessed 23 November 2021).
- WHO AWaRe antibiotic categorization. Geneva; World Health Organization; 2021 (<https://aware.essentialmeds.org/groups>, 23 November 2021).

P5. ZONOTIC DISEASE

Target: Functional multisectoral, multidisciplinary mechanisms, policies, systems and practices are in place to minimize the transmission of zoonotic diseases³³ from animals to human populations.

As measured by: (1) Agreement by the animal health³⁴ and public health sectors on a common list of zoonotic diseases/pathogens of greatest national public health concern. (2) Existence of functional capacities in the animal health and public health sectors and of collaboration, coordination and communication between them, ensuring satisfactory level of preparedness, detection, assessment and response capacities for zoonotic diseases.

For full scores, capabilities should be separately evaluated both in the human and animal (companion animal, livestock and wildlife) health sectors and mechanisms for regular joint planning, sharing of information, collaboration, communication and joint policy development with a One Health approach should be in place. The final score should be based on the lower of the scores for the human and animal health sectors.

Desired impact: Functional animal health, public health systems and environmental health work individually and collaboratively together through documented mechanisms of coordination and operational frameworks, using a One Health approach and based on international standards, guidance and best practices, to minimize the transmission of zoonotic diseases to human populations.

Level	P5.1. Surveillance of zoonotic diseases ³⁵	Choose one level
Level 1	No agreed list of prioritized zoonotic diseases. Capacities for the surveillance of zoonotic diseases do exist but are not coordinated between the animal health, public health and environment sectors and exchange of information is on ad hoc basis	
Level 2	A list of priority zoonotic diseases has been agreed on between the animal health, public health and environment sectors. Coordination of surveillance activities between animal health, public health, and environmental sectors is informal, and limited to few diseases. Information sharing is not systematic	
Level 3	Coordination of surveillance activities for listed priority emerging and endemic zoonotic diseases is formalized between the animal health, public health and environment sectors at the national level, ensuring exchange of information, joint assessment of risks, using a One Health approach ⁴	
Level 4	Multisectoral surveillance systems for priority emerging and endemic priority zoonotic diseases are in place at the national level and formal coordination mechanisms between the animal health, public health and environment sectors are also established at intermediate levels, allowing the surveillance of the whole territory	
Level 5	Coordinated surveillance of priority and emerging zoonotic diseases between animal health, public health and environment sectors is tested/assessed/reviewed and improved on a regular basis (annually)	

³³ Zoonotic diseases are infections or diseases that are transmissible between animals and humans.

³⁴ Animal health sector includes relevant authorities in charge of companion animals, livestock and wild animals. Regarding the later, certain activities may be partially ensured by stakeholders out of the veterinary services (e.g., under the authority of environment services) but still under their authority for the management of zoonotic diseases.

³⁵ Linkages between ministries of health and agriculture and wildlife specialists to promote the sharing of information and data should be efficient and also exist at the regional and primary public health response levels.

Level	P5.2. Response to zoonotic diseases ³⁶	Choose one level
Level 1	Despite the existence of mechanisms for the response to certain specific diseases or pathogens, no coordination between the animal health, public health and environment sectors is organized for zoonotic diseases	
Level 2	Multisectoral national policy, strategy and/or plan for response to zoonotic events have been elaborated and are documented. Multisectoral contingency plans following a One Health approach have been developed for the most important endemic and epidemic zoonotic diseases	
Level 3	A multisectoral operational mechanism for coordinated response to outbreaks of endemic, emerging or re-emerging zoonotic diseases by human health, animal health and environment sectors is in place	
Level 4	Several experiences of response to zoonotic events confirm timeliness ³⁷ and efficiency of the multisectoral operational mechanism, including clear definition of roles, responsibilities and procedures between sectors in charge of domestic animal, wildlife, human health and other relevant sectors ³⁸	
Level 5	The multisectoral operational mechanism for the response to outbreaks of endemic, emerging or re-emerging zoonotic diseases is regularly tested through exercises and/or real events and adjusted accordingly	

Level	P5.3. Sanitary animal production practices ³⁹	Choose one level
Level 1	Systematic efforts to improve good sanitary practices in the breeding of terrestrial and aquatic animals and in the production of animal products ⁴⁰ are not actively promoted or are minimal	
Level 2	Some activities are in place to develop and promote good sanitary practices in animal breeding and production of animal products, limiting the risks of transmission of zoonotic diseases	
Level 3	National plan for good practices in animal breeding and production of animal products, including sanitary practices, are established based on international standards (e.g., OIE Terrestrial and Aquatic Codes, Codex Alimentarius) ⁴¹ and implemented. National guidelines for good production practices are developed, published, disseminated and adjusted for implementation from local farm to the trade of animal product level, limiting the risk of transmission of zoonotic diseases	

³⁶ The indicator refers to the national capacity to detect, assess and respond to zoonotic diseases events, and includes consideration on the animal health and human health sector capacity, as well as the collaboration and coordination mechanism between them.

³⁷ Timeliness is judged and determined by each country and is referred to here as the time between detection of an event and response.

³⁸ Relevant sectors: At minimum, the ministries or agencies that are key to the technical area and may include human health, animal health, environment, food safety, finance, trade/ports of entry, chemical safety, radiation safety, security, defence, private sector, regulatory bodies, media among others. Civil associations, such as private stakeholders (from industry, medical associations, farmers associations) and academia responsible for aspects of the technical area (but not key) may be included as needed.

³⁹ In this indicator, agriculture ministry refers to that ministry or agency responsible for animal health and production. The agriculture ministry (or other relevant agency) can provide an accurate description of animal demographics within the country and within each administrative unit. Information can also be found in the OIE PVS Pathway reports available with the Chief Veterinary Officer. Animals concerned in this assessment include livestock but also farmed wild species and breeding of animals to be sold as pets.

⁴⁰ This refers to all sort of products from bred animals. For food-related products, reference can be made to Indicator P 6.3: Food safety/management and hygiene practices in food processing.

⁴¹ Compliance with the standards of the OIE Terrestrial and Aquatic Codes and Codex Alimentarius are reviewed in the OIE PVS Pathway reports.

Level	P5.3. Sanitary animal production practices ³⁹	Choose one level
Level 4	Nationwide implementation of the national plan for good practices in animal breeding and production of animal products, including sanitary practices across all major animal value chains is ensured and prevent transmission of zoonotic diseases	
Level 5	Periodic inspection, assessment and monitoring of practices in animal breeding and production of animal products are conducted in the main animal production value chains and the compliance with national guidance is constantly verified	

Contextual questions

- Which are the zoonotic diseases of greatest public health concern within the country and is this assessment shared by the different sectors?
 - What process was used to develop the list of zoonotic diseases of greatest public health concern?
 - Did the process include all relevant stakeholders, including the animal health, the environment and the other relevant sectors?
- Is there a formal policy for collaboration between sectors for the management of zoonotic diseases in the country? If so, how is it organized/led/governed?
- Is there a national multisectoral coordination committee for one or more zoonotic diseases and is this committee holding regular meetings? If so, which is the leading agency?
- Is there a mechanism for conducting joint risk assessment when zoonotic disease events?
- Within the past two years, has a real event occurred or a SimEx been conducted to practice and test the skills and coordination capacities of public health workers in both human and animal sectors for investigation and response to a zoonotic event? What were the most significant lessons learned from the zoonotic disease event or the SimEx?
- List the zoonotic diseases for which prevention and/or control policies exist with the purpose of reducing their spread into human populations?
 - Describe the progress in implementing these policies.
 - Is there a plan in place to address factors that may prevent reporting of zoonotic disease (may include lack of awareness of reporting obligations, absence of compensation for destroyed animals, menace of social stigma)?
- Has there been an OIE PVS evaluation mission or PVS Gap Analysis? If so, what year(s) was it held?
- Has there been an IHR-PVS National Bridging Workshop or other One Health related workshops involving relevant ministries? If so, mention which one(s).

Technical questions

P5.1. Surveillance of zoonotic diseases

- Describe the system/mechanism by which surveillance activities are planned and implemented concurrently by the animal health and human health sectors.

2. Does the country have an agreed list of priority zoonotic diseases?
3. Does the country have a surveillance system in place on relevant animal populations for these priority zoonotic diseases?
4. Does the country have a human surveillance system in place for these diseases?
5. Describe partnerships between the ministries of health and agriculture and other relevant agencies including biological specialists, academia, wildlife specialists and environmental groups as they relate to zoonotic disease detection and response.
 - a. Are situational awareness reports or reports of potential disease outbreaks being shared between the agencies?
 - b. Are risk assessments jointly conducted (e.g., using the Tripartite Joint Risk Assessment tool)?
6. Do public health laboratories and animal health laboratories communicate with each other?
 - a. Is there a process for sharing unique or serious isolates between public health and animal health laboratories?
 - b. Is there a process for sharing biological specimens between public health and animal health laboratories?
 - c. Is there a process for sharing laboratory reports or alerts between public health and animal health laboratories?
 - d. Are these reports shared on a regular basis, or only when zoonotic diseases are discovered or suspected?
7. Describe the exchange of epidemiological reports.
 - a. How organized is the exchange of information regarding suspicions and confirmed cases of zoonotic diseases?
 - b. Are joint epidemiological report and/or risk assessment reports jointly developed and shared with health professionals and/or publicly available?

P5.2. Responding to zoonotic diseases

1. Describe the policy, strategy or plan for responding to zoonotic events in the country in the animal health and public health sectors.
 - a. Is there a joint plan or strategy that exists between human health and animal health (including wildlife) sectors for the management of zoonotic events?
 - b. Is there a MoU or similar agreement between the relevant sectors for the management of zoonotic events?
2. Describe how the latest zoonotic events were managed, for example:
 - a. How was the information shared between sectors?
 - b. How often did the sectors meet at the technical level?
 - c. Were outbreak investigation jointly conducted, and response activities jointly defined?
 - d. Are there reports highlighting this coordination during the latest zoonotic events?
3. Are there any mechanisms for activating interagency response teams in the event of a suspected zoonotic outbreak?

4. Describe the roles and responsibilities of human health and animal health (including wildlife) sectors during these recent zoonotic events.
5. Does the country have capacity to respond to zoonotic events on time? What is the timeliness at present?
6. Does the country have a preparedness plan for handling emerging or re-emerging zoonotic diseases, including those of unknown with verification?
7. Are SimExs conducted to test part of or the full response mechanism? Are AARs being conducted after the response to zoonotic events to adjust as appropriate?

P5.3. Sanitary animal production practices

1. Are animal breeding practices following the international recommendations on sanitary standards and animal welfare?
 - a. What is the level of compliance in each of the main production systems?
 - b. What is the level of awareness and adhesion in the professionals and the public?
2. Which is the recent example of spill over events from domestic, companion or wild animals?
 - a. Where these events associated with any particular breeding systems or any other facilitating factor(s) along the animal and animal product value chain?
 - b. Who are the people more specifically vulnerable to such events, because of their professional or behavioural activities?
3. Are there clear and respected regulations regarding marketing and markets of live animals and associated measures to reduce the risk of exposure to zoonotic pathogens during selling, slaughtering and culling or through animal bodily fluids, respiration or excrement (that do not necessary comprise foodborne hazards)?
4. Is the identification system of animal and animal products able to retrospectively investigate the origin of zoonotic events associated with animal and animal products value chain?
 - a. Is trackability also ensured with farmed wild animals?
 - b. Is there evidence of illegal wildlife trade for pets or food?
 - c. What is known about the complete value chain (i.e., a full range of activities that are required to bring a product or service from its conception to the final consumers)?

Documentation or evidence for level of capability:

- laws, regulations and implementation policies documents covering animal health in general and zoonotic diseases in particular;
- existing MoU or other similar agreement between ministry of health, veterinary authorities and other relevant stakeholders (including private stakeholders) related to the surveillance and control of zoonotic diseases;
- agreed list of zoonotic priority pathogens in public health;
- descriptions of existing zoonotic surveillance, risk assessment and control mechanisms;
- national level disease situation reports, regular surveillance bulletins and risk assessment reports;
- list of zoonotic diseases specific reference laboratories;

- reports on SimEx or AARs of recent zoonotic diseases;
- OIE country PVS Pathway mission report.
- reports from the IHR-PVS National Bridging Workshops.

References:

- OIE PVS Pathway mission reports. World Organisation for Animal Health [website]. (<https://www.woah.org/en/what-we-offer/improving-veterinary-services/pvs-pathway/>, accessed 16 March 2022).
- Handbook for the assessment of capacities at the human–animal interface. Geneva: World Health Organization; 2017. (<https://www.who.int/publications/i/item/handbook-for-the-assessment-of-capacities-at-the-human-animal-interface-2nd-ed>, accessed 16 March 2022). This document highlights the synergies and complementarities between the JEE and the OIE PVS Pathway reports and provides concrete information regarding the national veterinary services' contribution to specific JEE capacities.
- The Tripartite Zoonoses Guide has been jointly developed by the FAO, OIE, and WHO to support countries in taking a multisectoral, One Health approach to address zoonotic diseases. It provides principles, best practices and options to assist countries in achieving sustainable and functional collaboration at the human-animal-environment interface. (<https://www.who.int/initiatives/tripartite-zoonosis-guide>, accessed 16 March 2022).

P6. FOOD SAFETY

Target: Functional system is in place for the surveillance and response to foodborne diseases and food contamination risks or events with effective communication and collaboration among all the sectors responsible for food safety.

As measured by: (1) Existence of indicator-based surveillance (IBS) or event-based surveillance (EBS) and supporting laboratory analysis to detect and assign etiology for foodborne diseases or origin of contamination event, and investigation of hazards in foods linked to cases, outbreaks or events. (2) Existence of a national food safety emergency plan. (3) Existence of a designated International Food Safety Authorities Network (INFOSAN) Emergency Contact Point, and the OIE focal point on animal production food safety with a central coordination mechanism in place.

Desired impact: Timely detection and effective response of potential food-related events in collaboration with other sectors responsible for food safety.

Level	P6.1. Surveillance of foodborne diseases and contamination	Choose one level
Level 1	No or very limited surveillance system in place for foodborne diseases or food contamination (chemical and microbiological) monitoring	
Level 2	Country has IBS or EBS and monitoring systems in place to monitor and detect foodborne events (outbreak or contamination)	
Level 3	IBS or EBS system includes laboratory analysis to assign etiology of foodborne diseases or origin of contamination event, and investigate hazards in foods linked to cases, outbreaks or events	
Level 4	Country has capacity to undertake rapid risk assessments of acute foodborne events at the national and intermediate levels	
Level 5	Country has a surveillance system in place that integrates information from the entire food chain including timely and systematic information exchange, to enable a better understanding of risk and mitigation possibilities	

Level	P6.2. Response and management of food safety emergencies	Choose one level
Level 1	No or very limited response and management of food safety emergency mechanism is in place	
Level 2	Country has a national food safety emergency plan with food safety emergencies defined to serve as a trigger for escalating appropriate response	
Level 3	Country has a national food safety emergency plan and a designated INFOSAN Emergency Contact Point, with a central coordination mechanism in place that includes all relevant sectors with functional arrangements in place for the implementation of response in the event of a food safety emergency	
Level 4	Strategies and guidance for communicating with partners, stakeholders, general public and international organizations are in place	
Level 5	The food safety emergency response plan, based on the risk analysis framework, is tested and/or reviewed after an emergency has occurred	

Notes:

The PVS tool has two critical competencies on food safety CC II-7 A (regulation, inspection (including audits), authorization and supervision of establishments for production and processing

of food of animal origin), II-7 B (ante and post mortem inspection at slaughter facilities and associated premises) which can provide relevant information on country capacity to conduct surveillance on foodborne pathogens.

Technical questions

P6.1. Surveillance of foodborne diseases and contamination

1. Does the country have a surveillance and monitoring system in place that includes priority foodborne diseases as well as priority hazards (chemical and microbiological)?
2. Does the country have case definitions for each of the notifiable foodborne diseases?
3. Are health care workers and sanitary/food inspectors trained on reporting foodborne events (disease outbreaks or contamination events)?
4. Is there a team at the national and intermediate level who can rapidly assess foodborne events?
5. Are people identified to take part in the outbreak or event response teams trained to undertake outbreak investigations of foodborne diseases?
6. Are outbreak response teams trained to collect and transport appropriate specimens to a laboratory during foodborne outbreaks to identify the etiological agent?
7. Does the country have an updated list of laboratories that can perform the necessary testing during foodborne outbreaks or contamination events?
8. Are representatives from food safety and other laboratories within the country (e.g. animal health, where applicable) routinely part of the outbreak response team?
9. Do surveillance and response staff know the focal points for food safety, animal health and the key laboratories that would be required to test clinical and/or food samples collected during an event?
10. Is there an effective (formal or informal) mechanism for rapid information exchange during suspected foodborne disease outbreak or event investigations between all the stakeholders/ relevant sectors?

P6.2. Response and management of food safety emergencies

1. Does the country have a plan that documents response procedures to address food safety emergencies?
 - a. Does it include agreed definitions for thresholds for response to food safety emergencies?
 - b. Does it refer to national (central) coordination?
 - c. Are clear roles and responsibilities established?
 - d. Are procedures for communications established?
2. Was the plan developed in a participatory way with the full participation of all relevant sectors and stakeholders?
3. Are all key partners and involved stakeholders properly aware of their roles and of the response procedures required of them in the event of a food safety crisis/emergency?
4. Are all important stakeholders (including their decision and policy-makers, leaders, and technical staff) fully briefed on response procedures?

5. Is there a national mechanism in place ensuring the gathering and sharing of relevant information for collective evaluation (such as national or regional information sharing networks)?
6. Is there an active INFOSAN Emergency Contact Point? Are there active INFOSAN Focal Points? Are there active OIE NFPs on animal production food safety?
7. Is there a coordination mechanism in place (such as a multiagency coordination team) with clear terms of reference to facilitate communication between central and primary public health response levels?
 - a. Does this involve sectors from public health, food inspection, veterinary, official laboratory, customs and quarantine and agriculture?
 - b. Does this involve other relevant sectors, such as tourism, national security department, environmental services?
 - c. Are clear roles and responsibilities assigned to all partners of the coordination team?
8. Are key stakeholders aware of the principles and practices of communication and control systems in the event of a food safety crisis or emergency?
9. Is there a list of all necessary contact details for communicating with partners readily available and updated (local and foreign governments, international organizations, industry)?
10. Does the country undertake regular activities aimed at preparing effective communications for food safety emergency responses?
11. Are there periodic SimExs to test the emergency response plan?
12. Are there records of reviews from past emergency reviews, considering:
 - a. appropriateness of response activities;
 - b. effectiveness of withdrawal or recalls implemented;
 - c. regulatory procedures available to inspectors to take action (prevent production and distribution of food products);
 - d. capacity of analytical services;
 - e. global capacity of inspection services and laboratories to report to the central coordination mechanism;
 - f. means of communications; and
 - g. sufficient resources (staff, analytical, etc.) and capacities (additional needs for training)?

Documentation or evidence for level of capability:

- list of priority foodborne diseases and priority foodborne hazards (chemical and microbiological);
- guidance on priority foodborne diseases and their case definitions;
- national level report based on collated local reports for rapid risk assessment;
- training material, reports and certificates;
- interviews with sanitary/food inspectors;
- protocols for collecting/testing clinical specimens and food samples for all priority foodborne diseases and foodborne hazards;

- data reporting protocols for all priority foodborne diseases and foodborne hazards;
- list of contact laboratories;
- questionnaires for priority foodborne pathogens and foodborne hazards;
- integrated food chain surveillance database;
- data analysis reports;
- copies of regular surveillance bulletins;
- documentation presenting the definition of a national food safety emergency;
- interviews of key partners/stakeholders regarding their knowledge of their roles and of response procedures;
- records of information exchange and communication with relevant international, regional and national networks;
- updated list of partners' contacts;
- documented and updated lists of possible external resources (experts, competencies or specialist groupings);
- any documentation, report or record on the establishment, implementation and ongoing work of the coordination mechanisms;
- list of all necessary contact details (local and foreign governments, international organizations, industry);
- templates for notifications of incidents;
- model press releases;
- recall and withdrawal notices;
- prepared questions and answers;
- reports on SimEx to pre-test the response emergency plan;
- record of feedbacks from past emergency reviews;
- TrACSS reporting.

P7. BIOSAFETY AND BIOSECURITY

Target: A whole-of-government multisectoral national biosafety⁴² and biosecurity⁴³ system with high-consequence biological agents⁴⁴ identified, held, secured and monitored in a minimal number of facilities according to best practices,⁴⁵ biological risk management training and educational outreach conducted to promote a shared culture of responsibility,⁴⁶ reduce dual-use risks, mitigate biological proliferation and deliberate use threats, and ensure safe transfer of biological agents; and country-specific biosafety and biosecurity legislation, laboratory licensing and pathogen control measures in place as appropriate.

As measured by: (1) Existence of a national framework for biosafety and biosecurity, strain collections, and containment laboratories, that includes identification and storage of national strain collections in a minimal number of facilities from all sectors. (2) Existence of comprehensive oversight and monitoring systems.

Desired impact: Implementation of a comprehensive, sustainable and legally embedded national oversight programme for biosafety and biosecurity, including the safe and secure use, storage, disposal and containment of biological agents found in laboratories and a minimal number of holdings across the country, and involving research, diagnostic and biotechnology facilities within all sectors.⁴⁷ A cadre of biological risk management experts possessing the skillset to train others is established within their respective institutions. Strengthened, sustainable biological risk management best practices are in place using common educational materials. Rapid and culture-free diagnostics are promoted as a facet of biological risk management. Safe and compliant transport of infectious substances is also considered according to national and international regulations as appropriate.

⁴² Laboratory biosafety describes the containment principles, technologies and practices that are implemented to prevent unintentional exposure to pathogens and toxins, or their accidental release. WHO Laboratory biosafety manual, 4th edition (LBM4) (<https://www.who.int/publications/i/item/9789240011311>, accessed 16 March 2022).

⁴³ Laboratory biosecurity describes the protection, control and accountability for valuable biological materials within laboratories as well as information related to these materials and dual-use research, in order to prevent their unauthorized access, loss, theft, misuse, diversion or intentional release.

⁴⁴ Dangerous pathogens and toxins – The informal Australia Group provides a list of human and animal pathogens and toxins for export control (http://www.australiagroup.net/en/human_animal_pathogens.html, accessed 16 March 2022).

⁴⁵ It is suggested that minimal/best practice would follow the WHO Laboratory biosafety manual. 2020 (<https://www.who.int/publications/i/item/9789240011311>, accessed March 16 2022).

⁴⁶ Responsible life sciences research for global health security: a guidance document. WHO/HSE/GAR/BDP/2010.2. Geneva: World Health Organization; 2010 <https://www.who.int/publications/i/item/WHO-HSE-GAR-BDP-2010.2>, accessed 16 March 2022).

⁴⁷ Within both human and animal health sectors.

Level	P7.1. Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	Choose one level
Level 1	Elements of a comprehensive risk-based assessment approach in national biosafety and biosecurity system, such as policy instruments and proper financing, are not in place	
Level 2	<p>Some, but not all, elements of a comprehensive biosafety and biosecurity system are in place. The country is:</p> <ul style="list-style-type: none"> i) starting the process to monitor and develop an updated record and inventory of pathogens within facilities that store or process dangerous pathogens and toxins and what they house ii) developing, but has not finalized, comprehensive national biosafety and biosecurity regulatory framework to regulate their possession and use 	
Level 3	<p>Comprehensive national biosafety and biosecurity system are in place. The country is:</p> <ul style="list-style-type: none"> i) finalizing the process to support active monitoring and maintaining an up to date records and inventory of pathogens within facilities that store or process high-consequence biological agents ii) finalizing the development of comprehensive national biosafety and biosecurity framework based on risk assessment to regulate possession and use of high-consequence agents iii) finalizing the development and implementation of risk control measures, operational handling and containment failure reporting systems iv) starting the consolidation of high-consequence agents into a minimum number of facilities v) starting to put into place tools and resources to support diagnostics that do not require culturing high-consequence agents vi) starting to put in place incident and emergency and response programmes. Basic methods are in place for the safe handling, decontamination and disposal of infectious waste 	
Level 4	<p>Biosafety and biosecurity system is developed, but not sustainable. The country is:</p> <ul style="list-style-type: none"> i) actively monitoring and maintaining an updated record and inventory of pathogens within facilities that store or process dangerous pathogens and toxins ii) implementing enacted comprehensive national biosafety and biosecurity regulatory framework iii) implementing the national framework to regulate possession and use of high-consequence agents iv) implementing risk control measures, operational handling and containment failure reporting systems v) completing the consolidation of high-consequence agents into a minimum number of facilities vi) employing diagnostics that preclude culturing high-consequence biological agents vii) operating incident and emergency and response programmes viii) operating waste management practices which cover sharps, contaminated waste, chemical waste and non-hazardous general waste with full documentation of waste management 	

Level	P7.1. Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	Choose one level
Level 5	Sustainable multisectoral biosafety and biosecurity system is in place including information security. Ministries have made available adequate funding and political support for a comprehensive national biosafety and biosecurity system, including maintenance of facilities and equipment, as well as review and update the national framework and its effectiveness periodically. Complete disinfection, sterilization and waste management practices are in place	

Level	P7.2. Biosafety and biosecurity training and practices in all relevant sectors (including human, animal and agriculture)	Choose one level
Level 1	No biological biosafety and biosecurity training or plans are in place	
Level 2	Country has conducted a training needs assessment and identified gaps in biosafety and biosecurity training but has not yet implemented comprehensive training that aligns with the incumbent roles and responsibilities. General lack of awareness among the laboratory workforce of international biosafety and biosecurity best practices for safe, secure and responsible conduct is reported. Country does not yet have sustained academic training in institutions proportionate to the assessed risks, including training those who maintain or work with high-consequence agents	
Level 3	Country has training programmes in place proportionate to the assessed risks, staff roles and responsibilities, and has begun implementation. Country has specific training programmes in place at most facilities housing or working with high-consequence agents. Training on biosafety and biosecurity has been provided to staff at some, but not all, facilities that maintain or work with high-consequence agents. Country is developing sustained academic training proportionate to the assessed risks, including the one for those who maintain or work with high-consequence agents. All training is aligned with incumbent's role and responsibilities	
Level 4	Country has training programmes in place at all facilities and staff trained proportionate to the assessed risks, roles and responsibilities, including those that house or work with high-consequence agents. Country has in place academic training proportionate to the assessed risks, including institutions that train those who maintain or work with high-consequence agents	
Level 5	Country has sustainable training programmes included into university/college curricula of pre-service training and into continuing education programmes. Staff competence is assessed, and exercises are conducted periodically. Country has funding and capacity to sustain all of the above. A review of training needs assessment is conducted periodically and refresher training on identified needs areas are conducted. Training on emergency response procedures is provided periodically	

Technical questions

P7.1. Whole-of-government biosafety and biosecurity system in place for all sectors (including human, animal and agriculture facilities)

1. Is there active monitoring and development of an updated record and inventory of high-consequence biological agents within facilities that store or process high-consequence biological agents?
 - a. Does the country have in place an updated record of where and in which facilities high-consequence agents are housed?
 - i. Have collections of high-consequence agents been identified?
 - ii. What guidance is to be provided to countries which do not have supporting systems and legislation already in place to enable them to require inventory records of "high-consequence agents" kept by facilities?
 - iii. Is there an agreed list of "high-consequence agents" to which this question applies?
 - iv. How often are facilities expected to update such records?
2. Is there a comprehensive national biosafety and biosecurity regulatory framework being enacted?
 - a. Does the country have biosecurity legislation and/or regulations in place? Are they being implemented?
 - b. Does the country have biosafety legislation and/or regulations in place? Are they being implemented?
 - c. Describe the following from the country's national biosecurity legislation, regulations or frameworks, and the country's national biosafety legislation, regulations or frameworks.
 - i. How is this information shared with laboratories at intermediate levels within the country?
 - ii. Are regulations and/or guidelines for biosecurity followed by laboratories within the country? What about for biosafety?
 - iii. Describe biosecurity monitoring activities. Describe biosafety monitoring activities.
 - iv. Has a third party assessed biosecurity at national laboratory facilities? Was a biosafety assessment also done?
 - When was the assessment performed?
 - Have the recommendations from those biosecurity and biosafety assessments been put into place?
 - v. What type of laboratory requires a license or regulatory authorization to possess certain high-consequence agents in the country?
 - vi. Are there common license conditions/safety and security requirements for all licensed laboratories? If so, what are they?
 - vii. How is compliance with licensing requirements monitored?
 - viii. Is there adequate availability of funding to support biosafety and biosecurity programmes/initiatives and their oversight and enforcement at the ministry level and also at the institutional level?

- ix. Is there a mechanism for biosecurity oversight of dual-use research and responsible code of conduct for scientists?
- 3. Are the laboratory licensing and pathogen control measures, including requirements for physical containment and operational practices, and containment and failure reporting systems being implemented?
 - a. Physical security
 - i. Are appropriate security measures in place to minimize potential inappropriate removal or release of biological agents (such as theft, earthquake, flood)?
 - b. Information security
 - i. Is access to sensitive information (such as inventory of agents and toxins) controlled by adequate policies and procedures?
 - c. Transportation security
 - i. Are procedures for a safe and secure transport of culture, specimens, samples and other contaminated materials established and followed?
 - ii. Is there national legislation for the transportation of dangerous goods, including infectious substances?
 - d. Personnel security
 - i. Is there a mechanism to determine which personnel are authorized to access high-consequence agents?
 - ii. Is there evidence that this mechanism to authorize personnel is being implemented correctly?
 - e. Biosafety and biosecurity practices at facilities housing or working with high-consequence agents
 - i. Are site-specific biosafety and biosecurity management programmes and supporting documents (manuals, SOPs, job aides, records) available to include biosafety, biosecurity, incident response and emergency plans (such as for explosion, fire, flood, worker exposure, accident or illness, major spillage)?
 - ii. Are roles and responsibilities related to biosafety and biosecurity management defined and documented (biosafety officer, security manager)?
 - iii. Have the biosafety and biosecurity risks been assessed and categorized?
 - iv. Are biosafety and biosecurity control measures described in an action plan?
 - v. Are there mechanisms to ensure that personnel: are suitable and competent (e.g., best practices) in human resources management (e.g., verification of prior education and employment, periodic performance reviews), have successfully completed training/mentorship programmes, and have the ability to work unsupervised?
 - f. Is there a system in place to conduct audits of laboratory facilities?
 - i. If so, are audits performed regularly?
 - ii. What organization conducts these audits? Are these within the government or external?
 - iii. Are audits conducted by the national authority (such as periodical inspection) or by the local biological safety officer?
 - iv. Which types of laboratories are subject to these audits?

- g. Do laboratories ensure that best practices for biosafety and biosecurity are in place? If yes, how?
 - h. Do any of the national laboratories have other relevant classifications (i.e., FAO/OIE/WHO collaborating centres/reference laboratories)?
4. Are high-consequence agents consolidated into a minimum number of facilities?
 - a. Has the country considered consolidating the locations for high-consequence agents? If not, will consolidation be considered?
 - b. Have collections of high-consequence agents been consolidated into a minimum number of facilities?
 5. Are they employing diagnostics that preclude culturing high-consequence agents? Does the country utilize diagnostic tests that eliminate the need for culturing high-consequence agents?
 6. Are they implementing oversight and enforcement mechanisms, and have ministries made available adequate funding to support the comprehensive national biosafety and biosecurity system?
 - a. Are there mechanisms for oversight, enforcement and attribution for biosafety and biosecurity legislation, regulations and/or guidelines?
 - b. Does the country have funding for these activities? Is the funding source sustainable?
 7. Are the new facilities planned with long-term commitment of resources for operation and maintenance and formally commissioned before opening?
 8. Can the biological safety cabinets be serviced locally?
 9. Are there sufficient national resources (budget and human) to ensure proper and timely maintenance of facilities and equipment?
 10. Is there an appropriate waste management policy at the national level and is it being implemented locally?
 11. Does each facility have sufficient PPE based on local risk assessment?
 12. Is there a framework to document, report, investigate and address any incidents and accidents at the facility and national levels?
 13. Are national regulations in place and up to date for the transport of infectious substances (categories A and B)?
 - a. If yes, do local carriers ensure the transport of infectious substances according to national regulations?
 - b. Do the people responsible for the shipment of specimens have access to training on infectious substance transport? If yes, are these trainings in line with United Nations regulations on the transport of infectious substances?
 14. Do laboratory personnel have equal access to occupational/worker health services in all facilities?
 15. Is there a specific vaccination policy (pre-exposure prophylaxis) for laboratory personnel (hepatitis B and other relevant diseases)?
 16. Is post-exposure prophylaxis treatment provided to laboratory workers in all facilities?
 17. Are laboratory-associated infections and other incidents reported?
 - a. Who does it get reported to?
 - b. Is there a national snapshot as to what is happening across the country?

P7.2. Biosafety and biosecurity training and practices in all relevant sectors (including human, animal and agriculture)

1. Does the country have training programmes in place at all facilities, including those that house or work with high-consequence agents? Is biosafety and biosecurity training in place across all facilities, including those that house or work with high-consequence agents? What about biosafety training?
2. Has training on biosafety and biosecurity been provided to staff at all facilities, including those that maintain or work with high-consequence agents?
 - a. Does the country conduct need assessments for biosafety and biosecurity trainings? If so, how often?
 - b. How often are staff trained on biosafety procedures? What about for biosecurity procedures?
 - c. How often are staff tested or exercised on biosafety procedures? What about for biosecurity procedures?
 - d. How are these exercises monitored and assessed?
 - e. Do these exercises include a process to document successes and areas for improvement?
 - f. Are there corrective action plans in place?
3. Does the country have in place sustained academic training in institutions, including those that train those who maintain or work with high-consequence agents? Do academic institutions in the country have biosafety training programmes in place, including those training to work with high-consequence agents?
4. Does the country have the funding and capacity to sustain biosafety and biosecurity training?
5. How does the national system ensure access to transport providers for national and international transportation of infectious substances?
6. Is there induction and refresher training for all laboratory staff on biosafety and biosecurity?
7. Is there a mechanism to ensure and monitor staff competence and standards of training at all laboratories?

Documentation or evidence for level of capability:

- documentation of high-consequence agents collections housed in the country;
- establishment, enactment and enforcement of any relevant national legislation on biosafety and biosecurity;
- biosafety officers trained, receiving ongoing training and stationed at all laboratories that have the potential to handle high-consequence agents and high-risk experiments;
- policy document for bio-risk or biosafety management in a facility is a written policy statement that is signed and reviewed annually;
- OIE country PVS Evaluation mission and/or Gap Analysis report (also see section "Prevent – Zoonotic disease");
- OIE country PVS Laboratory mission report.

P8. IMMUNIZATION

Target: A national vaccine delivery system – with nationwide reach, effective distribution, easy access for marginalized populations, adequate cold chain and ongoing quality control – that is able to respond to new disease threats.

As measured by: 90–95% coverage of the country's 12-month-old population with at least one dose of measles-containing vaccine (MCV), as demonstrated by coverage surveys or administrative data.

Desired impact: Effective protection through achievement and maintenance of immunization against measles and other epidemic prone vaccine-preventable diseases (VPDs). Measles immunization is emphasized because it is widely recognized as a proxy indicator for overall immunization against VPDs. Countries will also identify and target immunization to populations at risk of other epidemic prone VPDs of national importance (such as cholera, Japanese encephalitis, meningococcal disease, typhoid or yellow fever). Diseases that are transferable from animals to humans, such as anthrax and rabies, are also included.

Level	P8.1. Vaccine's coverage (measles) as part of national programme	Choose one level
Level 1	Less than 50% of the country's 12-month-old population has received at least one dose of MCV, as demonstrated by coverage surveys or administrative data. Plan is in place to improve coverage, including supplemental immunization activities	
Level 2	50–69% of the country's 12-month-old population has received at least one dose of MCV, as demonstrated by coverage surveys or administrative data. Plan is in place to achieve 90% coverage within the next five years and include supplemental immunization activities	
Level 3	70–89% of the country's 12-month-old population has received at least one dose of MCV, as demonstrated by coverage surveys or administrative data. Plan is in place to achieve 95% coverage within the next three years	
Level 4	90% of the country's 12-month-old population has received at least one dose of MCV, and the trajectory of progress, plans and capacities are in place to achieve 95% coverage by 2030. More than 90% of all intermediate (districts/provinces or states) units are covered	
Level 5	95% of the country's 12-month-old population has received at least one dose of MCV, as demonstrated by coverage surveys or administrative data; or 90% of the country's 12-month-old population has received at least one dose of MCV and the trajectory of progress, plans and capacities are in place to achieve 95% coverage by 2030	

Level	P8.2. National vaccine access and delivery	Choose one level
Level 1	No plan is in place for nationwide vaccine delivery, nor have plans been drafted to provide vaccines throughout the country to target populations. Inadequate vaccine procurement and forecasting lead to regular stock-outs at the central and district levels	
Level 2	Implementation has begun to maintain a cold chain for vaccine delivery but is available in fewer than 40% of districts in the country, or vaccine delivery (maintaining cold chain) is available to less than 40% of the target population in the country. Inadequate vaccine procurement and forecasting lead to regular stock-outs at the central and district levels	

Level	P8.2. National vaccine access and delivery	Choose one level
Level 3	Implementation has begun to maintain a cold chain for vaccine delivery but is available in fewer than 40% of districts in the country, or vaccine delivery (maintaining cold chain) is available to less than 40% of the target population in the country. Inadequate vaccine procurement and forecasting lead to occasional stock-outs at central and district levels. Vaccine procurement and forecasting lead to no stock-outs of vaccines at central level and occasional stock-outs at district level	
Level 4	Vaccine delivery (maintaining cold chain) is available in 60–79% of districts within the country or vaccine delivery (maintaining cold chain) is available in 60–79% of the target population in the country. Functional vaccine procurement and forecasting take into account global stocks, lead to no stock-outs at the central level and rare stock-outs at the district level that are within their control	
Level 5	Vaccine delivery (maintaining cold chain) is available in greater than 80% of districts within the country or vaccine delivery (maintaining cold chain) is available to more than 80% of the national target population. Systems to reach marginalized populations using culturally appropriate practices are in place. Vaccine delivery has been tested through a nationwide vaccine campaign or functional exercise. Functional procurement and vaccine forecasting results in no stock-outs	

Level	P8.3. Mass vaccination for epidemics of VPDs ⁴⁸	Choose one level
Level 1	National plan for mass vaccination response to epidemics outbreaks of VPDs, including national guidelines for regulatory approval and acquisition of new and experimental vaccines, ⁴⁹ is not available or under development	
Level 2	National plan for mass vaccination response to outbreaks of VPDs, including national guidelines for regulatory approval and acquisition of new and experimental vaccines, has been developed	
Level 3	National plan for mass vaccination response to outbreaks of VPDs, including national guidelines for regulatory approval and acquisition of new and experimental vaccines, and relevant SOPs are disseminated and implemented at the national level	
Level 4	National plan for mass vaccination response to outbreaks of VPDs, including national guidelines for regulatory approval and acquisition of new and experimental vaccines, and relevant SOPs are disseminated and implemented at all levels (i.e., national , intermediate and local)	
Level 5	National plan and relevant SOPs for mass vaccination response have been applied against at least one epidemic of VPD in the country; national guidelines for regulatory approval and acquisition of new and experimental vaccines have been utilized in a real event or SimEx, and the plan and SOPs are assessed, tested and updated regularly	

⁴⁸ Mass vaccination for epidemics of VPDs are based on the concept of herd immunity. When a high proportion of a population is vaccinated, person-to-person disease transmission is interrupted by surrounding the infected person with vaccinated individuals.

⁴⁹ Under emergency use listing, a new vaccine goes through established development, manufacturing and clinical testing procedures and is demonstrated to be safe, efficacious and meets manufacturing standards, the data must be assessed by regulators to authorize its use.

Contextual questions

1. Describe if there are other nationally important immunizations outside the scope of the WHO Global Vaccine Action Plan (such as cholera, Japanese encephalitis, meningococcal disease, typhoid and yellow fever).
2. Is public perception on the topic of immunization monitored? Do vaccination campaigns address perception issues? Are messages tailored to different groups? Are barriers to vaccine uptake investigated?

Technical questions

P8.1. Vaccine coverage (measles) as part of national programme

1. Does the country have a national level immunization programme or plan?
 - a. What VPDs are covered by this programme or plan?
 - b. List the target rates for coverage for each of these vaccines.
 - c. Is the country's national vaccine action plan aligned with the WHO Global Vaccine Action Plan?
 - d. Does the national vaccine action plan consider zoonotic diseases of national concern?
 - e. Is immunization mandatory or voluntary?
2. What programmes or incentives are in place to encourage/support routine vaccination?
3. What factors discourage/hinder routine vaccination?
4. Describe the systems used to monitor vaccine coverage.
 - a. Is the percentage of coverage with measles-containing antigen vaccine and diphtheria tetanus pertussis tracked for the population?
 - b. Which offices or agencies are involved in monitoring vaccine coverage for the country?
 - c. How often is vaccine coverage measured?
 - d. What is the source and quality of the data used as denominator in coverage estimates?
 - e. Which systems are in place to monitor the quality of coverage data?
5. Is there specific support (monetary and staffing) for data gathering/reporting?

P8.2. National vaccine access and delivery

1. Describe how national systems ensure continuous cold chains as necessary for vaccine delivery throughout the country.
2. What structure and mechanisms are in place to ensure a sustainable supply to enable a successful programme?
3. Confirm that global vaccine stock levels are considered when reviewing domestic stock levels.
4. What strategies are in place to support the equitable distribution and administration of vaccines with special attention to marginalized and vulnerable populations?
5. Is there specific support (monetary and staffing) for immunization delivery?

P8.3. Mass vaccination for epidemics of VPDs

1. Does the national regulatory authority for pharmaceutical products have fast track approval policy for new pharmaceutical products?
2. Does the national fast track policy for approval of new pharmaceutical products include emergency approval of use of experimental vaccines in epidemics of novel pathogens?
3. What factors discourage/hinder introduction of new and experimental vaccines?
4. Describe the systems used to monitor coverage and safety of new and experimental vaccines;
 - a. Which offices or agencies are involved in monitoring vaccine coverage for the country?
 - b. Which offices or agencies are involved in monitoring vaccine safety for the country?
 - c. Which systems are in place to monitor the quality of coverage and vaccine safety?
 - d. How does the system used to monitor vaccine coverage and safety account for safe inclusion of vulnerable populations?
5. Is there specific support (monetary and staffing) for gathering/reporting of vaccine coverage and safety data?
6. Describe how national systems ensure continuous cold chains as necessary for vaccine delivery throughout the country.
7. What structure and mechanisms are in place to ensure a sustainable supply to enable a successful programme?
8. Confirm that global vaccine stock levels are considered when planning national vaccination campaign(s).
9. Describe the most recent national vaccine campaign(s) or any recent functional exercises geared towards vaccine distribution and/or administration in the country.
10. What strategies are in place to support the equitable distribution and administration of vaccines with special attention to vulnerable populations?

References:

- The Expanded Programme on Immunization. World Health Organization [website] (<https://www.who.int/teams/immunization-vaccines-and-biologicals/essential-programme-on-immunization>, accessed 22 March 2022).
- WHO measles and polio eradication programmes.
- Global Vaccine Action Plan 2011–2020. World Health Organization [website] (http://www.who.int/immunization/global_vaccine_action_plan/en/, accessed 16 March 2022).
- Global measles and rubella – Strategic plan 2012–2020. Geneva: World Health Organization; 2012 (http://apps.who.int/iris/bitstream/10665/44855/1/9789241503396_eng.pdf, accessed 16 March 2022).

D1. NATIONAL LABORATORY SYSTEM^{50,51,52,53,54}

Target: Surveillance with a national laboratory system, including all relevant sectors,⁵⁵ particularly human and animal health, and effective modern⁵⁶ point-of-care and laboratory-based diagnostics.

As measured by: (1) A nationwide laboratory system able to support⁵⁷ diagnostic testing on appropriately identified and collected specimens transported safely and securely to accredited laboratories from at least 80% of intermediate levels/districts in the country. (2) Existence of national quality laboratory standards and system for licensing laboratories.

Desired impact: Effective use of a nationwide laboratory system, including all relevant sectors, capable of safely and accurately detecting and characterizing pathogens causing epidemic disease and chemical threats including both known and unknown threats from all parts of the country. Expanded deployment, utilization and sustainment of modern, safe, secure, affordable and appropriate diagnostic tests or devices established.

⁵⁰ The National Laboratory System is a collaborative community of clinical laboratories, public health laboratories, and many individual partners who initiate tests and/or use test results (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2846799/pdf/phr125s20018.pdf>, accessed 24 November 2017). The same applies to the National Veterinary Laboratory System.

⁵¹ For full scores, capabilities should be separately evaluated both in the human and animal (livestock, companion animal and wildlife) health sectors and mechanisms for regular joint planning, sharing of information, collaboration, communication and joint policy development in a One Health approach should be in place. The final score should be based on the lower of the scores for the human and animal health sectors.

⁵² The indicators refer to the national laboratory capacity for the country.

⁵³ Link this technical area with other technical areas that require laboratory testing capacity (such as surveillance, zoonosis, food safety, AMR).

⁵⁴ The national laboratory system should include:

- ability to conduct diagnostic tests on priority diseases;
- ability to transport specimens safely and quickly from 80% or more of intermediate levels/districts to national laboratory facilities for advanced diagnostics;
- ability to conduct high-level diagnostic testing at national laboratories or have agreements with regional networks to ensure testing is available;
- ability to test for antimicrobial susceptibility for priority pathogens in human health and in animal food production.

⁵⁵ Relevant sectors include private and public sectors, such as all levels of the health care system (national, intermediate and community/primary public health); NGOs; divisions/activities of other sectors which affect public health, such as ministries of agriculture (quarantine and movement control authority, import/export regulations, disease diagnosis and control financing, zoonosis, veterinary laboratory etc.), transport (transport policy, civil aviation, ports and maritime transport), trade and/or industry (food safety and quality control), foreign trade (consumer protection, control of compulsory standard enforcement), communication, defence, treasury or finance (customs), environment, interior, health, tourism; health; the home office; media; and regulatory bodies.

⁵⁶ Modern – novel molecular and cellular methods capable of prompt and accurate identification of pathogens in a timesaving and cost-effective manner.

⁵⁷ Support – having the technical capacity to implement the testing modality as well as the equipment and sustainable and sufficient supply of reagents; also indicates that the country has capacity to use the modality in a variety of ways (not just to test for a single pathogen – i.e., PCR testing for tuberculosis).

Level	D1.1. Specimen referral and transport system	Choose one level
Level 1	No system in place for transporting specimens from intermediate levels/districts to national laboratories; only ad hoc transportation ⁵⁸ is available	
Level 2	Referral and transport of specimens is organized ⁵⁹ for some priority diseases ⁶⁰ but may be restricted within districts or at the intermediate and national level	
Level 3	Referral and transport of specimens is organized for diagnostics and/or confirmation of most priority diseases from intermediate to national level	
Level 4	Referral and transport of specimens is organized systematically for diagnostics and/or confirmation of all priority diseases at all levels	
Level 5	Sustainable referral and transport systems, that are exercised reviewed, evaluated and updated on a regular basis, are in place for all specimen types ⁶¹ and requests for the diagnosis, confirmation, characterization of all specimens with complete coverage at all levels	

Level	D1.2. Laboratory quality system ⁶²	Choose one level
Level 1	National laboratory quality standards are not available or under development	
Level 2	National quality standards have been developed but not implemented	
Level 3	National quality standards have been developed and implemented at the national level. Activities include licensing of laboratories in conformity with national quality standards	
Level 4	National quality standards have been developed and are being implemented at national and intermediate levels, Activities include mandatory licensing of laboratories in line with basic quality requirements or national laboratory standards	
Level 5	National quality standards are implemented at all levels including mandatory licensing of all laboratories in conformity with international quality standards and exercised, reviewed, evaluated and updated on a regular basis, as applicable	

Level	D1.3. Laboratory testing capacity ⁶³ modalities	Choose one level
Level 1	Laboratory system can support one or two testing modalities such as rapid diagnostic testing (antigen and antibody) and microscopy services for pathogen detection	
Level 2	Laboratory system can support testing modalities including serological tests (i.e., antigen and antibody enzyme immunoassays) and quality assurance process is in place	

⁵⁸ Ad hoc transport system: no SOP on how to transport sample.

⁵⁹ This is an organized or established procedure within the country or outside. Some island countries may not require a system in place at the country level and can have access to regional or international laboratories.

⁶⁰ Priority diseases are based on the local epidemiology and as defined in the national surveillance guidelines for priority diseases and/or notifiable diseases; they include, epidemic prone diseases, diseases earmarked for eradication/elimination and diseases of public health importance.

⁶¹ Common specimen types include blood, urine, saliva, sputum, faeces, and other bodily fluids and tissues.

⁶² In conformity with national quality standards based on the quality assurance system of the country. See: WHO manual for organizing a national external quality assessment programme for health laboratories and other testing sites. Geneva: World Health Organization; 2016 (<http://apps.who.int/iris/bitstream/handle/10665/250117/9789241549677-eng.pdf>, accessed 1 April 2018).

⁶³ Refers to laboratory test capacities that are available within the country (including research laboratories and private laboratories) to support surveillance and response; or that are available through referral mechanisms to designated central or international reference laboratories (e.g., WHO collaborating centres).

Level	D1.3. Laboratory testing capacity ⁶³ modalities	Choose one level
Level 3	Laboratory system can perform nucleic acid amplification testing, bacterial culture with antimicrobial sensitivity testing with quality assurance process in place and have access to (or has) sequencing capacity	
Level 4	Laboratory system can perform nucleic acid amplification testing, bacterial culture with antimicrobial sensitivity testing with quality assurance process in place and has some basic sequencing capacity and country has ability to test for all its endemic diseases and its priority diseases	
Level 5	Laboratory system can perform tests described in previous capacities and has access to whole genome sequencing ⁶⁴ identification of unknown and high-consequence pathogens and has access to viral culture. Laboratory networks configured to support all diagnostic services ⁶⁵ that are integrated ⁶⁶ are sustainable, with maximum population coverage, and exercised, reviewed, evaluated and updated on a regular basis as applicable	

Level	D1.4. Effective national diagnostic network	Choose one level
Level 1	Tier-specific diagnostic testing strategies ⁶⁷ are not available or under development	
Level 2	Tier-specific diagnostic testing strategies are developed	
Level 3	Tier-specific diagnostic testing strategies exist, but not fully implemented	
Level 4	Tier-specific diagnostic testing strategies are being implemented at the national level	
Level 5	Tier-specific diagnostic testing strategies are being implemented at national, intermediate and primary public health levels, and exercised, reviewed, evaluated and updated on a regular basis, as applicable	

Contextual questions

1. What are the priority diseases of the country and which of these can be tested in the country?
2. Describe the structure of the laboratory system, including the number of laboratories, at local, intermediate levels/districts, and the national level.
 - a. How many reference laboratories exist and for which microbes?
 - b. Do local clinicians have the custom of using the laboratory system? Are there national guidelines in place for clinicians on how to conduct microbiological tests in specific syndromes, such as severe pneumonia, severe diarrhoea or suspected meningitis?
 - c. What systems exist for getting laboratory results back to practitioners? How long does this take?
 - d. What percentage of the population has access to laboratory services for the priority disease?

⁶⁴ Access to whole genome sequencing could be through international collaboration including WHO collaborating centres.

⁶⁵ This may include whole genomic sequencing and access to whole genome sequencing may be through international collaboration including WHO collaborating centres.

⁶⁶ Between the human, animal and environmental health sectors.

⁶⁷ Tier specific – the different administrative levels such as reference laboratories at the national level, intermediate and primary public health levels facility laboratories.

- e. Does laboratory data reporting guidance require reporting of demographic data such as sex, age, education, income/economic status, ethnic origin, geographical location, disability? What demographic data is reported?
3. Have national laboratories been accredited?
 - a. If yes, to what standard?
 - b. Are guidelines and protocols for quality management system enforced and in use by public and animal health laboratories?
 - c. Is there a national body that oversees internal quality controls and EQA schemes for public health laboratories at all levels?
 - d. Are all laboratories enrolled in the EQA programme for the tests they perform to detect any of the priority diseases?
4. How is laboratory data on zoonotic diseases shared between human and animal health laboratories? Are the two interoperable data systems? (See related questions in Prevent – Zoonotic disease.)
5. Is PPE available for laboratory staff?
 - a. How is availability of PPE tracked for laboratories?
 - b. Describe the training procedures for PPE use in national laboratories.
6. What biosecurity/biosafety training is provided to laboratory workers? (See related technical questions in Prevent – Biosafety and biosecurity.)

Technical questions

D1.1. Specimen referral and transport system

1. Is the specimen referral network documented for each of the tests necessary to detect and confirm etiologies of the 10 priority diseases?
2. Is there proof of a functioning referral system available? For example, data on the number of isolates/samples submitted to national reference laboratory for key disease(s) per 100 000 population.
3. Describe the system for specimen transport from intermediate levels (districts) to reference laboratories and national laboratories.
 - a. Are standardized SOPs in place for specimen collection, packaging and transport?
 - b. Is specimen transport (such as courier contracts) supported by the health ministry or its partners?
 - c. Does the transport system include motorbikes, post office and special couriers, to be used for all specimens (e.g., dried blood spots and stools)?
 - d. Is there a way to “rush” high priority specimens (e.g., suspect viral haemorrhagic fever specimens)?
 - e. Is tracking in place to document specimen shipment and receipt?
 - f. Is training in place for laboratories to use the system?
 - g. Are guidelines in place for schedule and transit times?
 - h. Is there a protocol(s) written and if so, are laboratories aware of it and do they use it?

4. Is there a system in place so that laboratory data and results linked with specimens are transferred?
5. Does the host country participate in a regional (international) laboratory network?
6. Is the specimen referral/transport network sustainable with country funding?
7. Does the country have an expedited process/procedure and administrative and regulatory systems in place for sample transfer to labs outside of the country?

D1.2. Laboratory quality system

1. Is there a national body in charge of laboratory licensing?
2. Is there a national body in charge of laboratory inspection? If yes, describe the inspection mechanism (frequency, procedures, sanctions, etc.)
3. Is there a national body in charge of laboratory certification (e.g., using ISO 9001)? If yes, provide name(s).
4. Is there a national body in charge of laboratory accreditation (e.g., using ISO 15189)?
 - a. If yes, provide name(s).
 - b. If not, do laboratories use services of foreign national/regional accreditation bodies?
5. Are some laboratories accredited for disease-specific testing by WHO (e.g., polio, measles, HIV genotyping)?
6. Provide the number of laboratories certified or accredited and specify to which standard.
7. Is there a specific national document that describes the registration procedure for in vitro diagnostic devices (i.e., kits and reagents)?
8. Is there a national regulatory authority responsible for in vitro diagnostic devices qualification or registration? If yes, provide a summary of the qualification or registration mechanisms.
9. Besides the inspection, certification or accreditation detailed above is any other kind of supervision organized? If yes or partial, describe the supervision plan and procedures (e.g., tuberculosis control or surveillance programmes).
10. Are there standardized supervision checklists or procedures?
11. When supervised, do the laboratories receive a report after each supervision visit?
12. Are there indicators to measure progress in laboratory test quality? If yes, list these indicators.
13. Does the country have a national EQA programme (proficiency-testing or rechecking) in the following areas:
 - a. bacteriology,
 - b. virology,
 - c. serology,
 - d. parasitology,
 - e. biochemistry,
 - f. haematology,
 - g. anatomical pathology,
 - h. cytogenetic,
 - i. transfusion medicine?

14. Describe the national EQA programme(s)/organization by providing for each: the name of the programme, contact person(s), and online description.
 - a. If applicable, is participation in national EQA programme(s) mandatory for public laboratories?
 - b. If applicable, is participation in national EQA programme(s) mandatory for private laboratories?
 - c. Percentage of public laboratories participating in national EQA programme(s)?
 - d. Percentage of private laboratories participating in national EQA programme(s)?
 - e. Are corrective actions organized when the assessment result is poor?

D1.3. Laboratory testing capacity modalities

1. Is there a set of national diagnostic algorithms for laboratory testing for priority diseases that have been aligned with international standards (i.e., WHO guidelines)?
2. How many priority diseases are tested effectively across the tiered laboratory network?
 - a. Of the tests that cannot be conducted, are there plans and timelines in place to gain this capacity within the next year?
3. Are there official agreements with laboratories outside the country for specialized testing not available in the country?
4. Has the country selected which protocols to use for each test?
5. Does the country have mechanisms in place for procurement of supplies?
6. Do the laboratories have quality assurance/quality control/quality management system plans in place to ensure quality for these tests?
7. Do laboratories have the required equipment (based on testing appropriate for the level in the tiered laboratory network) to support laboratory tests for priority diseases?
8. Are maintenance contracts in place for key equipment and is preventive maintenance implemented regularly?
9. Do national laboratories send out samples for testing quality control to international reference laboratories?
10. Are there in-country production and/or procurement processes for acquiring necessary media and reagents for performance of laboratory tests for priority diseases?

D1.4. Effective national diagnostic network

1. Does the country have strategies of conducting point-of-care/farm-based diagnostics? If yes,
 - a. What are those tests and at what levels are those available?
 - b. Do these tests cover the country's priority diseases?
 - c. If not, is the country developing these strategies?
2. Has the country developed strategies for tier-specific diagnostics? If not, is the country developing these strategies?

3. Is there a plan and/or mechanism in place to improve the availability of point-of-care diagnostics at clinical sites across the country? How does this plan address barriers to access, particularly for marginalized and vulnerable populations?
4. Do the ministries of health/agriculture, or other relevant ministries, have in-country production and/or procurement processes for acquiring necessary media and reagents for the performance of core laboratory tests?
5. Does the country perform advanced molecular and serological testing for referred samples and for confirmation/re-confirmation of diagnosis?
6. Does the country have a system/process in place to transfer data from national reference labs to the national public health institute or similar organization?

Documentation or evidence for level of capability:

- national laboratory strategic plan defining tiered laboratory network;
- national laboratory policy;
- documented list of top 10 priority diseases and three core syndromes for targeted improvement of prevention, detection and response;
- certificates of accreditation for national laboratories and/or EQA results within the past six months for core tests;
- documented specimen referral routes for detection/confirmation of top 10 priority diseases;
- plan for transporting specimens safely throughout the country;
- all OIE relevant tools, standards and manuals should be cited.

References:

- International Health Regulations: What gets measured gets done (includes listing of the 10 core tests). Centers for Disease Control and Prevention [website] (https://www.cdc.gov/globalhealth/security/actionpackages/national_laboratory.htm).
- Laboratory assessment tool. World Health Organization [website] (WHO/HSE/GCR/LYO/2012.2, <https://apps.who.int/iris/handle/10665/70874>, accessed 16 March 2022).
- All OIE relevant tools and standards. World Organisation for Animal Health [website] (<https://www.oie.int/en/what-we-do/standards/>, accessed 23 March 2022).

D2. SURVEILLANCE

Target: Strengthened early warning surveillance systems that are able to detect events of significance for public health and health security; (2) improved communication and collaboration across sectors and between national, intermediate and primary public health response levels of authority regarding surveillance of events of public health significance; and (3) improved national and intermediate level capacity to analyse data. This could include epidemiological, clinical, laboratory, environmental testing, product safety and quality, and bioinformatics data; and advancement in fulfilling the core capacity requirements for surveillance in accordance with the IHR.

As measured by: (1) Surveillance⁶⁸ for priority epidemic prone diseases conducted according to international standards. (2) Regular analysis and reporting of surveillance data.

Desired impact: (1) A functioning public health surveillance system⁶⁹ capable of identifying potential events of concern for public health and health security.⁷⁰ Enhanced national and intermediate level capacity to analyse and link data from and between the different levels of the strengthened early warning surveillance system.⁷¹

Level	D2.1. Early warning surveillance function	Choose one level
Level 1	National strategy, guidelines and/or SOPs for surveillance are not available or under development	
Level 2	National strategy, guidelines and/or SOPs for surveillance have been developed but not implemented. The surveillance system is functioning but lacks systematic immediate reporting or weekly reporting of events and/or data	
Level 3	National strategy, guidelines and/or SOPs for surveillance have been developed and are being implemented at the national level. The surveillance system provides immediate and weekly reporting of events and/or data with lab results integrated	
Level 4	National strategy, guidelines and/or SOPs for surveillance have been developed and are being implemented at the national and intermediate levels. The surveillance system provides immediate and weekly reporting of events and/or data with lab results integrated and integration between IBS and EBS	

⁶⁸ For the purpose of this document, surveillance is defined as the systematic ongoing collection, collation and analysis of data for public health purposes and the timely dissemination of public health information for assessment and public health response, as necessary. Surveillance in emergencies [website]. Geneva: World Health Organization; 2022 (<https://www.who.int/emergencies/surveillance>, accessed 16 March 2022). The surveillance system should include:

- ability to conduct surveillance for priority epidemic prone diseases;
- ability to provide reports and data to high-level public health decision-makers in the country, and feedback to lower levels implementing the control programmes; and
- linkages to laboratory and other information systems to provide a complete surveillance representation.

⁶⁹ Strong surveillance will support the timely recognition of the emergence of relatively rare or previously undescribed pathogens in specific countries.

⁷⁰ Each country has to define a "potential risk to public health", perform risk mapping and identify priority diseases.

⁷¹ Countries will support the use of interoperable, interconnected systems capable of linking and integrating multisectoral surveillance data and using resulting information to enhance the capacity to quickly detect and respond to developing biological threats. Foundational capacity is necessary for both IBS and EBS, in order to support prevention and control activities and intervention targeting for both established infectious diseases and new and emerging public health threats.

Level	D2.1. Early warning surveillance function	Choose one level
Level 5	National strategy, guidelines and/or SOPs for surveillance for all hazards linking all sectors have been developed and implemented at national, intermediate and primary public health ⁷² levels; and the system is exercised (as applicable), reviewed, evaluated and updated on a regular basis, with improvement at all levels in the country, with all components linked to one national surveillance system	

Level	D2.2. Event verification and investigation ⁷³	Choose one level
Level 1	Method, process or mechanisms for verifying and investigating detected events is not available or under development	
Level 2	Method, process or mechanisms for verifying and investigating detected events has been developed but not implemented	
Level 3	Method, process or mechanisms for verifying and investigating detected events has been developed and is being implemented at the national and intermediate level	
Level 4	Method, process or mechanisms for verifying, investigating and risk assessing detected events has been developed and is being implemented at the national and intermediate levels, involving trained personnel from multiple sectors	
Level 5	Method, process or mechanisms for verifying, investigating and risk assessing detected events is being implemented at national, intermediate and primary public health levels, involving trained personnel from multiple sectors and exercised (as applicable), reviewed, evaluated and updated on a regular basis	

Level	D2.3. Analysis ⁷⁴ and information sharing	Choose one level
Level 1	Surveillance data is received sporadically and analysed on some priority diseases, or unusual events, often with delay	
Level 2	Surveillance data is received regularly (i.e., weekly and/or monthly). An ad hoc team does some analysis of data	
Level 3	Surveillance data is received regularly and analysed on some priority diseases, or unusual events, often with delay. Data is shared across sectors	
Level 4	Surveillance data is received and analysed regularly. Epidemiological bulletins are generated and disseminated across sectors and internationally on regular basis. Data is shared across sectors and internationally on a regular basis	
Level 5	Surveillance data analysis is conducted, and epidemiological bulletins are generated and disseminated across sectors and internationally on regular basis. An electronic platform and a dedicated team support data management and generation of epidemiological bulletins. Data is shared across sectors and internationally on a regular basis. Capacity for advanced data analysis is ensured	

⁷² At primary level, community participation can be achieved through community based surveillance (CBS). EBS is a key part of syndromic surveillance and CBS.

⁷³ Investigation include contact tracing to identify all potential contacts and affected individuals.

⁷⁴ All surveillance data are systematically analysed for informed decision-making and dissemination.

Contextual questions

1. Does the country have a list of notifiable priority diseases?
2. Is the surveillance of infectious diseases linked in one national surveillance system versus a separate system for different diseases?
3. How does data from the laboratories feed into the surveillance system?
4. How does the country utilize electronic tools for notifiable diseases for human health and animal health?
5. If no electronic systems (tools) exist in the country, are there plans to develop in the future?
6. Are data from these systems shared between sectors (e.g., One Health), or independent?
7. Does surveillance reporting guidance require reporting of demographic data such as sex, age, education, income/economic status, ethnic origin, geographical location, disability? What demographic data are reported?

Technical questions

D2.1. Early warning surveillance function

1. Describe in-country early warning surveillance system and its objectives.
 - a. Describe sources utilized by early warning systems and mechanisms of collecting information.
 - b. Does early warning surveillance system exist at any intermediate or primary level?
 - c. Describe types, stakeholders and number of sites that participate in early warning surveillance system.
 - d. Are digital tools for early warning available?
 - e. Does the early warning surveillance system utilize electronic reporting?
2. Does the early warning surveillance system include
 - a. EBS, IBS and CBS components?
 - i. Is the EBS and IBS well integrated across all admin levels?
 - ii. Does EBS include multiple sources (e.g., media monitoring, community, call centres, health facilities)?
 - b. Engagement of community stakeholders (e.g., chiefs, religious leaders, volunteers, etc.)
 - c. List of priority diseases, conditions, syndromes and case definitions.
 - i. Does the list of conditions include events from other sectors (e.g., death of animals)?
 - ii. Did the country identify thresholds for important diseases?
3. Does the early warning surveillance system have complete and timely of reporting from at least 80% of all reporting units?
4. Does the early warning surveillance system have alert logbooks/alert management at all levels?
5. Describe data validation and quality assurance systems/efforts.
6. Describe epidemiological reports and feedback mechanisms that are produced by early

warning surveillance. Do these reports include analysis of trends in demographics, exposures and outcomes to identify groups most at risk? Are these reports used by public health decision-makers? Are these reports shared with any other ministries within the country?

7. Is there a regular monitoring and evaluation mechanism in place for early warning function of the surveillance system?

D2.2. Event verification and investigation

1. Describe how events of suspected disease outbreaks are verified at each level.
2. Describe how events of suspected disease outbreaks are investigated at each level.
3. Describe how data of events of suspected disease outbreaks are managed at each level.
4. Is there dedicated and trained staff from multiple sectors available for verification of events?
5. Is there a guidance/SOPs and trained staff multidisciplinary for outbreak investigations?
6. Is there a guidance and methodology for risk assessment at all levels?
7. Are there subject matter experts from multiple sectors available to support the verification and risk assessment of events?
8. How is the risk assessment information disseminated and to whom?

D2.3. Analysis and information sharing

1. Describe how surveillance data are analysed. Is there analysis of trends in demographics, exposures and outcomes to identify groups most at risk?
 - a. Is there an advanced analysis of surveillance data (e.g., geospatial, modelling, time series, etc.)?
2. Are there trained health care workers to analyse at national and intermediate levels?
3. Is there a mechanism in place to link epidemiological and laboratory data?
4. Is there a capacity to conduct risk assessment at national, intermediate and/or primary public health response levels?
5. How is the risk assessment information disseminated and to whom?
6. Is there a centrally located mechanism for integrating data from clinical case reporting and data from clinical or reference microbiological laboratories?
7. How often are reports published and disseminated?
 - a. Is it published systematically every week or monthly or annually?
 - b. Who does the analysis and at what level?
 - c. Does the country produce and publish an epidemiological bulletin? If yes, what is the frequency?
 - d. Is there a regular sharing of information with the public?
8. Does the electronic tool follow standards for data exchange?
 - a. Is there sharing of information with other sectors inside the country?
 - b. Is there sharing of information with other countries and international organizations?

Documentation or evidence for level of capability:

- samples of surveillance reports used by public health decision-makers in the countries;
- plans for enhancing early warning surveillance system including IBS, EBS and CBS;
- OIE reports (WAHIS);
- surveillance databases and forms.

References:

- Early detection, assessment and response to acute public health events: Implementation of early warning and response with a focus on event-based surveillance. Interim version. Geneva: World Health Organization; 2014 (http://apps.who.int/iris/bitstream/handle/10665/112667/WHO_HSE_GCR_LYO_2014.4_eng.pdf, accessed 16 March 2022).
- International Health Regulations (2005). 2nd edition. Geneva: World Health Organization; 2008 (<https://www.who.int/publications/i/item/9789241580410>, accessed 16 March 2022); includes lists of disease that have "demonstrated ability to cause serious public health impact".
- Terrestrial animal health code (2017). Volume 1. General provisions. World Organisation for Animal Health [website] (<https://www.oie.int/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/>, accessed 22 March 2022).
- Manual of diagnostic tests and vaccines for terrestrial animals (2017). World Organisation for Animal Health [website] (<https://www.oie.int/en/what-we-do/standards/codes-and-manuals/terrestrial-manual-online-access/>, accessed 22 March 2022).

D3. HUMAN RESOURCES

Target: States Parties with skilled and competent health personnel for sustainable and functional public health surveillance and response at all levels of the health system and the effective implementation of the IHR. Human resources include nurses and midwives, physicians, public health and environmental specialists, social scientists, communication, occupational health, laboratory scientists/technicians, biostatisticians, information technology (IT) specialists, biomedical technicians, epidemiologist, and others. There is a corresponding workforce in the animal sector of veterinarians, animal health professionals, para-veterinarians, epidemiologists, IT specialists and others. The recommended density of doctors, nurses and midwives per 1000 population for operational routine services is 4.45 plus 30% surge capacity. The optimal target for surveillance is one trained (field) epidemiologist (or equivalent) per 200 000 population who can systematically cooperate to meet relevant core competencies for IHR and OIE PVS. One trained epidemiologist is needed per rapid response team.

As measured by: (1) A trained health workforce that includes nurses and midwives, physicians, public health and environmental specialists, social scientists, laboratory scientists/technicians, biostatisticians, IT specialists and biomedical technicians. (2) Existence of a corresponding workforce in the animal sector of veterinarians, para-veterinarians, animal health professionals, epidemiologists, IT specialists and others. (3) Existence of a multisectoral surge workforce strategy and plans for emergencies.

Desired impact: Prevention, detection and response activities (including health promotion, occupational health safety and security, and appropriate care of those affected) conducted effectively and sustainably by a fully competent, coordinated, evaluated and occupationally diverse multisectoral workforce.

Level	D3.1. Multisectoral workforce strategy ⁷⁵	Choose one level
Level 1	No strategy is in place to develop a multisectoral health workforce. ⁷⁶ An assessment of the requisite workforce policies, plans, programmes and investment requirements has not yet been completed	
Level 2	Country has carried out an assessment of health workforce implications and requirements for implementation of health policies, strategies, plans and programmes to ensure sustained support and investment and optimal utilization of workers across public and private sectors. A strategy to develop health workforce exists but does not include all relevant sectors and cadres of public health professionals (e.g., epidemiologists, risk communications specialists, social scientists, IT specialists, legal/policy experts veterinarians/ livestock specialists, and community health workers)	
Level 3	A multisectoral health workforce strategy, which includes all relevant sectors and cadres of public health professionals exists, but is not routinely monitored, updated or implemented consistently	

⁷⁵ The indicator D3.1 refers to a multisectoral public health workforce capacity for the country. This includes primary care service providers.

⁷⁶ Workforce development is a cross-cutting element, and IHR implementation will depend on a strong public health workforce, the availability of sufficient and well-trained epidemiologists, social scientists, laboratory and public health specialists as well as the capacity of medical and nursing staff to correctly manage those affected and handle emergencies. Depending on the country, these forces can be in the public and/or private sector.

Level	D3.1. Multisectoral workforce strategy ⁷⁵	Choose one level
Level 4	A multisectoral health workforce strategy, which includes all relevant sectors and cadres of public health professionals is fully implemented and is reviewed, tracked and reported on annually	
Level 5	Country can measure, monitor and regularly report on the national multisectoral health workforce strategy. The strategy has an adequate and sustainable domestic budget line for appropriate workforce development and to compensate for workforce attrition	

Level	D3.2. Human resources for implementation of IHR	Choose one level
Level 1	Country does not have appropriate human resources ⁷⁷ capacity in relevant sectors required, to detect, assess, notify, report and respond to events according to IHR provisions	
Level 2	Appropriate human resources are available in some relevant sectors at the national level, to detect, assess, notify, report and respond to events according to IHR provisions	
Level 3	Appropriate human resources are available in all relevant sectors at national and intermediate levels, to detect, assess, notify, report and respond to events according to IHR provisions	
Level 4	Human resources are available as required in all relevant sectors at the national, intermediate and primary public health levels, to detect, assess, notify, report and respond to events according to IHR provisions	
Level 5	Country has documented policies or procedures for sustainable appropriate human resources in all relevant sectors to detect, assess, notify, report and respond to events according to IHR provisions, that are exercised (as applicable), reviewed, evaluated and updated on a regular basis and country may assist other countries in planning and developing human resources for IHR implementation, to the extent possible	

Level	D3.3. Workforce training	Choose one level
Level 1	Ad hoc or informal trainings are available in country. No formal multisectoral competency-based training programme(s) is (are) in place	
Level 2	Required workforce competencies have been mapped, aligning with the health workforce strategy. Ad hoc competency-based training programmes are in place for some professions, cadres or sectors through disease-specific or targeted initiatives	

⁷⁷ Appropriate human resources may include doctors, nurses, midwives, community based health workers, clinicians, toxicologists, veterinarians, food safety experts, radiation medicine, field epidemiologists, risk communication specialists, laboratory experts, public health experts, legal/policy experts, officials at human resources unit or department responsible for planning, mapping, development and distribution of public health and emergencies workforce at national and intermediate level, etc., as defined by function, country standards and needs.

Level	D3.3. Workforce training	Choose one level
Level 3	Regular and routine competency-based training programmes and standards including the One Health approach are available for some professions, cadres or sectors ⁷⁸ at the national level. In addition, one level of Field epidemiology training programme (FETP) ⁷⁹ (basic, intermediate, or advanced) or comparable applied epidemiology training programme is in place in the country or in another country through an existing agreement	
Level 4	Regular and routine competency-based training programmes and standards including the One Health approach are available for all professions, cadres and sectors at the national and intermediate levels. In addition, two levels of FETP (basic, intermediate and/or advanced) or comparable applied epidemiology training programme(s) are in place in the country or in another country through an existing agreement	
Level 5	All competency-based training programmes are conducted using a nationally or internationally recognized competency standard, where applicable. The country routinely monitors and evaluates both the required competency and training programme delivery and outcomes and updates as needed	

Level	D3.4. Workforce surge during a public health event	Choose one level
Level 1	A national multisectoral workforce surge strategic plan in emergencies ⁸⁰ is not available or is under development	
Level 2	Country has conducted a gap analysis of required surge health workforce for emergencies, and a national multisectoral workforce surge strategic plan in emergencies is developed to staff, roster, ready and train the workforce to carry out the functions attributed at the national level, including the government and nongovernmental partners workforce as applicable	
Level 3	Country has conducted a gap analysis of required surge workforce required in all sectors for emergencies, and a national multisectoral workforce surge strategic plan in emergencies is implemented with procedures to staff, roster, ready and train the workforce to carry out the functions attributed at the national level, including the government and nongovernmental partners workforce as applicable	

⁷⁸ Relevant sectors, including human health, animal health, agriculture, disaster management, food safety, livestock, fisheries, trade, international transport/PoEs, emergency services, environment, finance, chemical safety, radiation safety, labour, education, foreign affairs, civil society and other sectors.

⁷⁹ Field epidemiology training programme (FETP): Check Glossary. Basic level training is for local health staff and consists of limited classroom hours interspersed throughout as a three-to-five-months on-the-job field assignment to build capacity in conducting timely outbreak detection, public health response and public health surveillance. FETP intermediate level training is for district/region/state-level epidemiologists and consists of limited classroom hours interspersed throughout as a six-to-nine-month on-the-job mentored field assignment to build capacity in conducting outbreak investigations, planned epidemiologic studies, and public health surveillance analyses and evaluations. FETP advanced level training is for advanced epidemiologists and consists of limited classroom hours interspersed throughout the 24 months of mentored field assignments to build capacity in outbreak investigations, planned epidemiologic studies, public health surveillance analyses and evaluations, scientific communication, and evidence-based decision-making for development of effective public health programming with a national focus. Animal health professionals can be engaged in these FETP trainings.

⁸⁰ A national multisectoral workforce surge strategic plan in emergencies includes a gap analysis for surge workforce required in all sectors for emergencies (e.g., security, human health, animal health, environment) and has a surge workforce plan, with systems in place for identification and recruitment of required surge workforce personnel with programmes for competency development, including procedures or policies for pre-deployment, deployment and post-deployment.

Level	D3.4. Workforce surge during a public health event	Choose one level
Level 4	A national multisectoral workforce surge strategic plan in emergencies is implemented to carry out the functions at national and intermediate levels, with procedures to staff, roster, ready and train the workforce to and adequate capacity to send and receive multidisciplinary personnel within the country (shifting resources), including the government and nongovernmental partners workforce as applicable	
Level 5	A national multisectoral workforce surge strategic plan in emergencies is implemented to carry out the functions attributed at national, intermediate and primary public health response levels, with procedures to staff, roster, ready and train the workforce to an adequate capacity to send and receive multidisciplinary personnel within the country (shifting resources), including the government and nongovernmental partners workforce, as applicable, and exercised, reviewed, evaluated and updated annually; and may provide international collaboration for assisting emergency response	

Technical questions

D3.1. Multisectoral workforce strategy

1. Is there a strategy to ensure that appropriate workforce and human resources for the health sector are in place? Does this cover the full range of tasks and services in the (public and private) health sector (prevention/detection and response, care and rehabilitation)?
2. Describe which career tracks are included in the workforce strategy (such as epidemiologists, veterinarians, laboratory assistants and specialists, doctors, nurses)?
 - a. Are community health workers a part of the formal health workforce?
 - b. Are there job descriptions for the various career tracks and positions within them (such as performance appraisal, competency standards, career ladder)?
3. Is attrition a concern for the national public health system (may be caused by ageing employees, staff departures or other reasons)?
 - a. What are the main causes of attrition? Are there differences in attrition by personnel sociodemographic characteristics (e.g., sex, age, education, income/economic status, ethnic origin, geographical location, disability)?
 - b. What is the median number of years that public health personnel have been on staff rolls within the ministry and/or national institutes?
 - c. Are there incentives in place to maintain the existing public health workforce in the country?
 - i. Describe efforts in place to retain the public health workforce.
 - ii. Are there specific incentives for any workforce specialties (may include physicians, nurses, veterinarians, biostatisticians laboratory assistants and specialists, or animal health professionals)?
4. How is the workforce strategy being implemented and tracked?
 - a. Provide a copy of the strategy, if available.
 - b. Provide a copy of the workforce strategy tracking report, if available.

5. Does the strategy address occupational safety and health in health care facilities?
 - a. If yes, what is the coverage of occupational safety and health in public health systems?
 - b. If not, how is the occupational safety and health addressed in health care facilities?
6. How is the national public health workforce financed within the country?
 - a. Are the positions for the various cadres available, financed and filled?
7. Is there a separate workforce strategy for human resources in place for the animal health sector?
8. Is there a training plan to update the workforce with policy and strategies?

D3.2. Human resources for implementation of IHR

1. Describe the current human resources capacity in the country.
 - a. What is the existing capacity on epidemiologists, clinicians, biostatisticians, information systems specialists, veterinarians, social scientists, laboratory technicians/specialists and other public health personnel from different levels of the health system (local, intermediate and national)?
 - b. To what extent are these capacities available (only at the national level or below)?
 - c. Does each primary and/or intermediate level have some capacity for epidemiology, case management, laboratory services and others?
2. Describe how multidisciplinary task forces are formed and communicate with other actors (at national, intermediate and peripheral levels).
 - a. How are multidisciplinary task forces organized? How do different professionals interact and is this organized through a task force?
 - b. Discuss availability, and distribution (e.g., geographical location, levels of care), and demographics (e.g., sex, age, education, income/economic status, ethnic origin, geographical location, disability, etc.) of individual human resources capacities:
 - i. epidemiologists (including field epidemiology short term and long term),
 - ii. clinicians and clinical assistants,
 - iii. nurses,
 - iv. laboratory specialists and technicians,
 - v. information specialists and assistants,
 - vi. social scientists,
 - vii. veterinarians, veterinary technicians and para-veterinarians,
 - viii. other relevant personnel (e.g., community health workers and volunteers).
3. Describe how professionals at the national, intermediate and primary public health levels communicate on a regular basis. Are there standard reporting connections between these levels?
4. Describe how professionals at the national, intermediate and local levels communicate during an infectious disease outbreak. Are there standard reporting connections between these levels during outbreaks?

5. How many trained field epidemiologists are available to support investigations throughout the country? Is there a simple measure of the numbers of epidemiologists per unit of total population that may help differentiate quality levels – for example: less than 1 per 500 000 in capacity levels 1 or 2; 1 per 200 000 to 500 000 in capacity level 3; or more than 1 per 200 000 in capacity levels 4 or 5.
6. Does the country have established procedures for surge of these professionals?
7. Does each intermediate level/district (or other similar administrative divisions) have field epidemiology capacity?
8. Does the country have a human resources database? If yes, how is the database maintained and updated?
9. Describe any programme to address health worker shortages in rural, remote and underserved areas.

D3.3. Workforce training

1. Are there continuing professional education (CPE) programmes for public health officers, surveillance officers, nurses, midwives, general medical practitioners, veterinarians and para-veterinarians that include outbreak preparedness and control?
2. Which professions/cadres have received special trainings on outbreak preparedness and response?
3. Describe any short- and long-term training programmes that are available to help expand the number of qualified public health professionals within the country, i.e.,
 - a. physicians (public health and/or clinical care),
 - b. nurses (public health and/or clinical care),
 - c. veterinarians (public health, agricultural and/or private practice) and para-veterinarians,
 - d. biostatisticians,
 - e. other public health officers/surveillance officers,
 - f. laboratory assistants and specialists,
 - g. livestock professionals.
4. Describe programmes and institutions/professional bodies in charge of CPE and/or trainings, or their capacity in turn of delivering training. How are they funded?
5. Is there any training related to contingency planning, management of emergency situations or risk communications?
6. Is there any training that includes joint exercises for multidisciplinary teams? If yes, describe briefly (regular/on demand).
7. Have trainings been developed and conducted on the relevant officials' roles based on available legal instruments and policies?
8. Does the country have a trained legal workforce competent in public health law, including public health emergency legal preparedness?
9. Are professional development and trainings available to the legal workforce on public health law at the national, intermediate and local levels? If trainings are available, do they include training on public health emergency legal preparedness?

10. How are current trainings promoted to the legal workforce at the national, intermediate, and local level?
11. What are the major challenges in developing trainings for the legal workforce on public health law and public health emergency legal preparedness? What opportunities and resources (financial and otherwise) does the country have to address these challenges?

D3.4. Workforce surge during a public health event

1. Does the country have a policy for surge staffing for public health emergency response? Does the policy cover staff welfare, including overtime, insurance, etc.?
2. Does the country have a plan for surge staffing for public health emergency response? Have training procedures and materials been developed to orient surge personnel?
3. Does the surge personnel system include other sectors (chemicals, radiation, animal health) or do separate systems exist?

Documentation or evidence for level of capability:

- sample field epidemiology training curriculum used in the country;
- number of graduates/years, and if available, positions after training;
- public health workforce/human resource plan/strategy, if available and latest strategy drafted/enacted;
- annual reports based on workforce strategy;
- planning and availability of resources;
- terms of reference/job descriptions of provincial/district rapid response teams;
- job description/terms of reference of provincial/district public health officer in charge of outbreak preparedness;
- budget for human resources for health (animal and human health sector), donor contributions;
- description of the human resources management information system;
- list of variables used and data from human resource information systems, if available;
- post and staff list, if available; staff turnover, and number of staff attending in-service training and the following documentation on training:
 - annual reports based on workforce strategy,
 - lists of in-service training available in the country,
 - lists of national training institutes/professional bodies/schools of public health/nursing/midwifery/veterinary/medical colleges/universities that provide in-service training courses,
 - number of graduates/trainees per year,
 - CPE programme and course list (if available),
 - training course list for professionals that do not have CPE programmes,
 - evidence of training on issues related to occupational health, safety and security.

R1. HEALTH EMERGENCY MANAGEMENT

Target: This capacity focuses on management of health emergency and systems for enabling countries to be prepared and operationally ready for response to any public health event, including emergencies, as per the all-hazard requirement of IHR. Ensuring risk-based plans for emergency preparedness, readiness and response, robust emergency management structures and mobilization of resources during an emergency is critical for a timely response to public health emergencies.

As measured by: (1) Existence of national strategic multi hazard emergency assessments (risk profiles) and resource mapping. (2) Existence of emergency readiness assessment (3) Development of national health EOC⁸¹ plans and procedures. (4) Establishment of an emergency response coordination mechanism or incident management system. (5) Evidence of at least one response to a public health emergency within the previous year that demonstrates that the country sent or received medical countermeasures and personnel according to written national or international protocols. (6) Existence of an emergency logistic and supply chain management system/mechanism. (7) Existence of policies and procedures for research, development and innovation for emergency preparedness and response

Desired impact: Multisectoral actors at national intermediate and primary public health response levels are well coordinated and have a common understanding of the priority risks and are ready to implement timely, effective and efficient emergency response operations for outbreaks and other emergencies. Countries have the necessary legal and regulatory processes to allow for rapid national or cross-border deployment and receipt of public health, medical personnel and logistics and supplies during emergencies.

Level	R1.1. Emergency risk assessment ⁸² and readiness ⁸³	Choose one level
Level 1	A national all hazards risk profile based on a multihazard risk assessment is not in place or has not been updated in the past five years and there is no formal mechanism for the readiness assessment for potential public health emergencies	
Level 2	A national all hazards risk profile developed based on a multihazard risk assessment and capacity/readiness assessment for potential public health emergencies that have been conducted in the past five years is in place with priorities identified	
Level 3	A capacity/readiness assessment for potential public health emergencies has been conducted in the past two years and a national all hazards risk profile developed based on a multihazard risk assessment that has been conducted in the past two years is in place with priorities identified	

⁸¹ EOC: The national health EOCs are networked with health EOCs at intermediate and primary public health levels, and are interoperable with EOCs in other sectors, including with the National Disaster Management Office.

⁸² Health emergency risk profiles should be based on a strategic multisectoral and multihazard health emergency risk assessment and updated on a regular basis.

⁸³ This includes WHO recommended readiness checklist assessment and/or SimEx and/or drills.

Level	R1.1. Emergency risk assessment ⁸² and readiness ⁸³	Choose one level
Level 4	National and intermediate all hazards risk profiles developed based on a multihazard risk assessments that have been conducted in the past two years are in place with priorities identified AND The readiness and/or contingency plan(s) ⁸⁴ are adequately resourced and implemented in the past two years, including at intermediate levels	
Level 5	National and intermediate all hazards risk profiles based on multisectoral multihazard risk assessments and readiness plans are annually reviewed and updated to accommodate emerging threats, and are shared regularly among sectors	

Level	R1.2. Public health emergency operations centre (PHEOC) ⁸⁵	Choose one level
Level 1	A PHEOC has not been identified at the national level and no PHEOC handbook is in place	
Level 2	A national PHEOC, occupying a designated permanent or ad hoc facility, has been established AND A national PHEOC handbook ^{86a} with basic content is in place AND Staff to conduct core incident management system (IMS) functions within the national PHEOC have been identified	

⁸⁴ Contingency plans for specific hazards scenarios, define and organize actions that would need to be taken during the first phase of an emergency as well as those actions that need to be immediately initiated to ensure 1) countries can mitigate the impact of these identified risks as well as 2) countries have systems, procedures and resources in place to swiftly respond should these risks become emergencies. Contingency plans are linked with all hazards emergency response plans and need to be tested (for validation). Priority risks needs to be monitored so that that can be adjusted according to the evolution of the risks they address. (Adequately resourced: funding, logistics, human resources, temporary infrastructure are available to implement the plan).

^a EOC plans and SOPs describe key structural and operational elements; forms and templates for EOC data management, reporting and briefing; role descriptions and job aids for EOC functional positions (including incident management or command, operations, planning, logistics and finance) and resources including information systems to connect public health decision-makers to appropriate data sources;

^b Communications equipment; and

^c Staff that are trained and capable of coordinating an emergency response.

⁸⁵ National health EOC plans are in place for functions including public health science (epidemiology, medical and other subject matter expertise), public communications and partner liaison.

⁸⁶ There are additional trained staff who can support and replace regular EOC staff on a rotational basis.

^a A PHEOC handbook (also referred to as a PHEOC manual, PHEOC guide, or PHEOC plan) is described in the "WHO's Framework for a PHEOC". For the purpose of this indicator, a PHEOC handbook with basic content refers to a description of the structure, functions and procedures necessary for operating the PHEOC; this includes the necessary forms, role descriptions and SOPs for activating, operating and deactivating the PHEOC. A PHEOC handbook with full content refers to the addition of the full collection of plans, SOPs, and descriptions of the core components of the PHEOC as described in the "WHO's Framework for a PHEOC". (Note that the various plans and procedures may be incorporated directly into the handbook or referenced in the handbook as separate documents).

Level	R1.2. Public health emergency operations centre (PHEOC) ⁸⁵	Choose one level
Level 3	<p>A national PHEOC, occupying a designated permanent or ad hoc facility, has been established</p> <p>AND</p> <p>A national PHEOC handbook with full content is in place</p> <p>AND</p> <p>Staff identified to conduct core IMS functions within the national PHEOC have been trained against public health emergency management (PHEM) competencies^{86b}</p>	
Level 4	<p>A national PHEOC, occupying a designated permanent facility, has been established and an associated PHEOC handbook with full content is in place</p> <p>AND</p> <p>An operating budget exists for the core staffing, daily operations and maintenance of the national PHEOC</p> <p>AND</p> <p>The national PHEOC is capable of activating a coordinated response within 120 minutes of receiving an early warning or other information of an emergency requiring PHEOC activation^{86c}</p> <p>AND</p> <p>PHEOCs have been established at intermediate levels, their associated PHEOC handbooks with full content are in place, and their staff identified to conduct core IMS functions have been trained against PHEM competencies</p>	
Level 5	<p>The activation^{86d} operation, and deactivation of PHEOCs at all levels has been tested and PHEOC handbooks (with their associated plans and SOPs) have been updated annually</p> <p>AND</p> <p>National and intermediate PHEOCs have trained surge staff identified to sustain PHEOC operations across multiple shifts for extended periods</p>	

⁸⁶ b PHEM competencies are identified in the "WHO's Framework for a PHEOC".

^c Activation within 120 minutes of receiving an early warning or other information of an emergency requiring PHEOC activation is defined as starting when a risk assessment is completed that identifies designated triggers for activation (or an executive decision is made to activate), and ending when an activation order has been issued (in writing, electronically, telephonically, or by any other means), an incident manager has been appointed, and designated IMS staff assemble (in person or virtually) to obtain initial direction from the incident manager.

^d For the purpose of this indicator, activations to respond to actual public health emergencies may be considered in lieu of exercises.

Level	R1.3. Management of health emergency response ⁸⁷	Choose one level
Level 1	An IMS ⁸⁸ integrated with a national PHEOC ⁸⁹ or equivalent structure, is not available or under development	
Level 2	An IMS integrated with a national PHEOC, or equivalent structure, is developed but not operational	
Level 3	An IMS integrated with a national PHEOC, or equivalent structure, is in place and operational at the national level	
Level 4	An IMS integrated with a national PHEOC, or equivalent structure, is in place and operational at the national level and able to support intermediate levels	
Level 5	An IMS integrated with a national PHEOC, or equivalent structure, is in place and operational at the national level and is able to support Intermediate and primary public health levels and is exercised reviewed, evaluated and updated, with improvements based on SimExs and lessons learned from real-world events, e.g., IARs or AARs	

Level	R1.4. Activation and coordination of health personnel and teams in a public health emergency	Choose one level
Level 1	No national personnel surge ⁹⁰ plan has been drafted or is under development	
Level 2	National plans that outline a system for pre-deployment, deployment and post-deployment of surge personnel and teams, including sending and receiving personnel during public health emergencies have been drafted, including the development of plans for emergency management teams (EMT) ⁹¹ and rapid response teams (RRTs) for national response	
Level 3	National and intermediate level plans have been drafted that outline a system for pre-deployment, deployment and post-deployment of surge personnel, including sending and receiving personnel and teams during public health emergencies have been drafted, including the development of plans for EMTs and RRTs	
Level 4	Table top exercise(s) has been conducted to test decision-making and protocols for deployment of surge personnel and sending and receiving health personnel and teams from another country during a public health emergency, and training and equipment is available for EMTs and RRTs	
Level 5	Table top exercise(s) has been conducted to test decision-making and protocols for deployment of surge personnel and sending and receiving health personnel and teams from another country during a public health emergency, and training and equipment is available for EMTs and RRTs. Country participates in a regional/international partnership or has formal agreement with another country or international organization that outlines criteria and procedures for sending and receiving surge personnel and has participated in an exercise or response within the past year to practice	

⁸⁷ These include entities, such as points of contact, EOCs or response committees to coordinate health sector actors and resources in response to emergencies, and to coordinate health sector response with other sectors. Coordination mechanisms may apply IMSs to fulfil the coordination function.

⁸⁸ See definition of "Incident management system" (or incident command system) in the Glossary.

⁸⁹ See definition of "EOC" in the Glossary.

⁹⁰ Surge capacity is defined as the ability to increase (or conserve) resources in an emergency situation. Surge capacity is often deployed rapidly when routine operating capacities are insufficient to deal with the increased demand for resources in an emergency. Resources include personnel, equipment, supplies, finances, among others. A surge plan for scaling up response operations should be included in the national multisectoral multihazard response plans.

⁹¹ EMTs consist of health professionals providing direct clinical care to populations affected by outbreaks, disasters and emergencies as a surge capacity to support the local health system. They could be civilian or military or nongovernmental teams and include both national and international personnel.

Level	R1.5. Emergency logistic and supply chain management ⁹²	Choose one level
Level 1	Emergency logistics and supply chain management system/mechanism is under development and/or not able to provide adequate support for health emergencies	
Level 2	Emergency logistics and supply chain management system/mechanism is developed but not able to provide adequate support for health emergencies ⁹³	
Level 3	Emergency logistics and supply chain management system/mechanism is developed and is able to provide adequate support for health emergencies at the national level	
Level 4	Emergency logistics and supply chain management system/mechanism is developed and is able to provide adequate support for health emergencies at national and intermediate levels	
Level 5	Emergency logistics and supply chain management system/mechanism is implemented at national, intermediate and primary public health levels, and is exercised, reviewed, evaluated and updated on a regular basis	

Level	R1.6. Research, development and innovation ^{94,95}	Choose one level
Level 1	Research and development activities (operational and implementation) including approvals of research are conducted on an ad hoc basis	
Level 2	A health emergencies action plan or framework, which includes mechanisms for directing research and development, regulatory review for emergency preparedness and response, is under development. There is some existing national (public or private entities) funding for conducting research and development (R&D); and the country can facilitate and conduct regulatory reviews ⁹⁶	
Level 3	A health emergencies action plan or framework, which includes mechanisms and procedures for R&D, regulatory review for emergency preparedness and response is implemented and includes identification of institutions (i.e., within and/or outside the country) to support research	

⁹² Emergency logistics and supply chain system and mechanism include the capacity to purchase, store and deliver essentials products and materials necessary for the response (emergency kits, protective equipment, diagnostics, medical consumables, therapeutics, drugs and biomedical equipment) wherever they may be required in adequate quantity and in a timely manner. It also gathers and organizes the material, the capacities and processes allowing the deployment and the implementation of the response including emergency medical infrastructures, transportations, emergency offices and telecommunications.

⁹³ To maintain updated emergency logistic and supply chain management system/mechanism may include a robust regulatory system in place that allows for the emergency use and distribution of newly developed or newly available drugs, diagnostics and other materials.

⁹⁴ R&D are activities that focus on the innovation of new or improved knowledge, products and services through systematic and methodical work.

⁹⁵ Health Innovation refers to the development of new or improved health policies, systems, products and technologies, and services and delivery methods that improve people's health, with a special focus on the needs of vulnerable populations (<https://www.who.int/teams/digital-health-and-innovation/health-innovation-for-impact>, accessed 22 February 2022).

⁹⁶ Regulatory review refers to approval of initiation of and conduct of periodic review of biomedical research involving human subjects. The primary purpose of such review is to ensure the protection of the rights and welfare of the human subjects (Institute of Medicine (US) Roundtable on Research and Development of Drugs, Biologics, and Medical Devices; Davis JR, Nolan VP, Woodcock J, et al., editors. Assuring Data Quality and Validity in Clinical Trials for Regulatory Decision-Making: Workshop Report. Washington (DC): National Academies Press (US); 1999. FDA Regulatory Review. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK224583/>, accessed 16 March 2022).

Level	R1.6. Research, development and innovation ^{94,95}	Choose one level
Level 4	A health emergencies action plan or framework has dedicated resources and networks for R&D AND The relevant institutions conduct research in priority areas, documents and disseminates findings of research, development and innovation and their application in emergency preparedness and response	
Level 5	There is ongoing systematic generation of evidence-based solutions from R&D for enhanced emergency preparedness and response, as evidenced by one or more completed or ongoing research projects ⁹⁷ AND Utilization of evidence from research, development and innovation in emergency preparedness and response is documented and disseminated	

Technical questions

R1.1. Emergency risk and readiness assessment

1. Does the country have a national emergency risk profile based on strategic multihazard emergency risk assessments?
 - a. When was the last national strategic multihazard risk assessment conducted? Which sectors⁹⁸ participated in the risk assessment?
 - b. What are the findings of the national strategic emergency risk assessment?
 - c. Are strategic risk assessments conducted by all sectors? Do health sector strategic risk assessments contribute to national multisectoral risk assessments?
 - d. Are strategic risk assessments conducted at intermediate and primary public health levels? What proportion of intermediate or local entities has conducted risk assessments?
 - e. Are risk mapping and vulnerability assessment conducted at community level?
 - f. Is there a capacity to monitor priority risks or emerging risks? How often are national emergency risk profiles reviewed and updated to accommodate emerging threats or changing risks?
 - g. How are national risk profiles and resources shared among sectors? Are IT capacities utilized to support availability, accessibility, analysis, updating, reporting and sharing of risk assessments?
 - h. Are strategic risk assessments used as the basis for emergency preparedness measures?
2. Is there a formal mechanism for the readiness assessment for potential public health emergencies? E.g., WHO approved readiness assessment checklist or SimEx and/or drills?
 - a. Does the mechanism include all relevant stakeholders both from government, public and private sectors at all levels?

⁹⁷ Scope of research includes but not limited to drugs, biologics, medical devices, behavioural and operations research.

⁹⁸ Relevant sectors, including human health, animal health, agriculture, disaster management, food safety, livestock, fisheries, trade, international transport/PoEs, emergency services, environment, finance, chemical safety, radiation safety, labour, education, foreign affairs, civil society and other sectors.

- b. Is the readiness assessment adequately resourced with necessary funding, logistics, human resources and temporary infrastructure?
3. Has the country conducted readiness assessment of potential public health emergencies and developed readiness plan(s) and developed readiness plan(s)? or say informed emergency response plans? Or identified targeted, priority operational readiness interventions to inform emergency response plan with clear triggers for activation/scale up of preparedness/response measures
 - a. When was the last national readiness assessment conducted?
 - b. Was the assessment conducted across all stakeholders at different levels; national, intermediate and primary public health levels?
 - c. What is the finding of the readiness assessment and how are they shared with stakeholders?
 - d. Are the findings from the readiness assessment used as a basis to update the emergency response plans and to inform plans and mechanisms for coordinating multisectoral multihazard emergencies?
 - e. Does the country have a community readiness assessment checklist and mechanism in place to conduct community readiness assessment?

R1.2. Public health emergency operations center

1. Describe the health EOC at the national level (these questions are to be answered whether there is a permanent EOC, temporary EOC or virtual EOC).
 - a. If there is a dedicated EOC (physical), provide a floor plan and description of equipment.
 - b. What is the total staff capacity for the EOC? Is there a plan in place to accommodate additional staff if necessary?
 - c. Is there a reliable power source for the EOC?
 - d. Is there a reliable communications structure for the EOC? Does this include Internet, email and phone capabilities?
 - e. Is the organization able to convene participants from ministries and agencies of all relevant sectors and other national and multinational partners as appropriate?
2. Describe the plans and SOPs that are in place for the EOC.
 - a. Are the plans and procedures based on an IMS? Do they include the following functions and resources:
 - i. incident command,
 - ii. operations,
 - iii. planning,
 - iv. logistics,
 - v. finance.
 - b. When there is a national emergency, who serves as the incident manager for the health EOC?
 - c. Is there a procedure in place for decision-making in the EOC?

- d. Does the national health EOC plan include roles for public health science (epidemiology, medical and other subject matter expertise), public communications, partner liaison?
 - e. How often are these procedures updated? When was the last time they were updated?
 - f. How are EOC records and procedures maintained and distributed?
3. How long after the receipt of an early warning or information does it take for the activation of the EOC?
 - a. How many times was the EOC activated in the past five years?
 4. Are there intermediate health EOCs with staff who are trained in emergency management and EOC SOPs?
 5. How often are exercises conducted to test national EOC activation and networking with intermediate and multisectoral EOCs? When was the last time this happened?
 6. Describe roles for staff that have been identified for EOC functions. Are there role descriptions and job aids for national EOC functional positions?
 7. Describe how staff have been trained for their role in EOCs?
 - a. Is there a training programme for EOC staff?
 - b. How are EOC surge staff identified? Is there training available to EOC surge staff in advance of a response? Is there "just in time" training available?
 8. Does the EOC use standardized forms and templates for data/information management, reporting, briefing, etc.?
 9. Describe the availability/dissemination of situational awareness reports from health EOC for different target groups.

R1.3. Management of health emergency response

1. Is there an IMS for health emergencies?
2. Is the IMS integrated with a national PHEOC, or equivalent structure is in place and operational at the national and able to support intermediate and primary public health levels.?
3. Are there relevant incident management SOPs for health emergencies?
4. Is the IMS reviewed and/or tested, and improved, through exercises and lessons learned from real-world events (e.g., SimEx, IARs or AARs)?

R1.4. Activation and coordination of health personnel in a public health emergency

1. Does the country have a plan in place that identifies procedures and decision-making related to sending and receiving health personnel during a public health emergency?
 - a. Does the plan address regulatory and licensure concerns of requesting/accepting and receiving health personnel from an international source?
 - b. Does the plan identify training criteria and standards for health personnel who will be sent or received during a public health emergency?
 - c. Does the plan address liability concerns for using medical personnel during an international deployment?

- d. Does the plan address safety concerns for health personnel during a national or international deployment?
 - e. Does the plan address financial concerns for health personnel during a national or international deployment?
 - f. Are other sectors (i.e., security authorities, animal health) included in plans for sending/receiving personnel during an emergency?
2. Does the country have a plan for surge staffing for public health emergency response?
 - a. Have training procedures and materials been developed to orient surge personnel?
 - b. Have due considerations been paid to gender composition of surge personnel, including in leadership and decision-making roles?
 3. Does the surge personnel system include other sectors (chemicals, radiation, animal health) or do separate systems exist?
 4. Has the country exercised surge plans for health personnel within the past year? If yes, describe the exercise and specific outcomes.
 5. Is the country part of any regional/international personnel deployment agreements, such as WHO Global Outbreak Alert and Response Network? If yes, describe.
 - a. Are policies and resources in place to ensure that technical institutions and networks are able to be active partners in the Global Outbreak Alert and Response Network? If yes, describe.
 - b. Does the country have a pandemic preparedness plan or other emergency preparedness plan that addresses personnel deployments? If yes, describe.
 6. Does the country participate actively in the EMT initiative, adopt and use the EMT guiding principles and minimum standards?
 - a. Has the country designated EMT focal points at policy and operational levels?
 - b. Has the country participated in EMT training events or regional/global meetings?
 - c. Has the country taken on an active role in the EMT initiative at regional or global level, i.e., has it taken on the role of regional chair or vice-chair? Has it offered members for EMT technical working groups? Does the country provide experts to the EMT mentorship pool?
 - d. Does the country have a WHO classified EMT for international deployment?
 - e. Does the country have a quality assurance or accreditation system in place for nationally deployable EMTs?
 - f. Does the country have a set of regulations and norms to support the development of nationally deployable EMTs and a mechanism to coordinate them?

R1.5. Emergency logistic and supply chain management

1. Does the country have a plan in place that identifies procedures and decision-making related to sending and receiving medical countermeasures during a public health emergency?
 - a. Does the plan address regulatory concerns of requesting/accepting and receiving drugs or devices from an international source?

- b. Does the plan address logistic concerns related to sending, receiving and distributing medical countermeasures during a public health emergency?
 - c. Does the plan address security concerns that may emerge related to sending/receiving/distributing medical countermeasures during a shortage?
2. Has the country exercised plans for sending or receiving medical countermeasures within the past year?
 - a. If yes, describe the exercise and specific outcomes.
3. Does the country have a stockpile of medical countermeasures for national use during a public health emergency?
 - a. Does the country have capacity to produce antibiotics, vaccines, laboratory supplies/equipment or others?
 - b. Does this include countermeasures for use in other sectors (e.g., PPE for animal culling)?
 - c. If the country has a stockpile for drugs and equipment, specify for how long this may last and for how many patients.
 - d. Is there an annual budget available for stockpiling?
4. Does the country have agreements in place with manufacturers or distributors to procure medical countermeasures during a public health emergency? If yes, describe.
5. Is the country part of any regional/international countermeasure procurement agreements? If yes, describe.
6. Is the country part of any regional/international countermeasure sharing agreements? If yes, describe.
7. Is the country part of any regional/international countermeasure distributing agreements? If yes, describe.
8. Are there dedicated resources/staffing identified for logistics related to delivery and receipt of countermeasures?
9. Are there dedicated resources/staffing identified for tracking and distribution of countermeasures?
10. Does the country have a pandemic preparedness plan that addresses countermeasures? If yes, describe.
11. Does the country have a plan, procedure or legal provision in place for procuring animal countermeasures? If yes, describe.
12. Does the country have a plan, procedure or legal provision in place for distributing animal countermeasures? If yes, describe.

R1.6. Research, development and innovation

1. Is there a national strategic framework for operational research, in health emergencies?
2. Does the framework include emergency preparedness research?
3. Has the country identified institutions with research capacity (i.e., within or outside the country) for various components of emergency response e.g., legislation and policy, case management, laboratory diagnostics, vaccines, etc. to address research priorities?

4. Does the country have dedicated resources and networks for research, development and innovations?
5. Has the country had arrangement for documentation and dissemination of research findings, development and innovation and their application in emergency preparedness and response, e.g., publication in peer reviewed journals?
6. Does the country have trained staff for research and regulatory review?
7. Is there human resource development plan for research and regulatory review personnel?

Documentation or evidence for level of capability:

- plans of the EOC, and listing of available equipment;
- training plans for emergency operations staff;
- exercise plan, including evaluation and corrective action plan, if available;
- activation plan for emergency response, such as roster of emergency operations staff and role.

References:

- Public Health Emergency Operations Centre Network (EOC-NET). World Health Organization [website] (<https://www.who.int/groups/eoc-net>, accessed 1 March 2022).
- Sendai Framework indicators. Prevention Web [website] (<https://www.preventionweb.net/sendai-framework/sendai-framework-indicators>, accessed 1 March 2022).
- The Sendai Framework for Disaster Risk Reduction 2015–2030. Geneva: United Nations Office of Disaster Risk Reduction; 2015 (https://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf, accessed 1 March 2022).
- Classification and minimum standards for emergency medical teams. Geneva: World Health Organization; 2021. License: CC BY-NC-SA 3.0 IGO. (<https://extranet.who.int/emt/guidelines-and-publications>, accessed 16 March 2016).
- Management of limb injuries during disasters and conflicts. Geneva: World Health Organization; 2017 (https://extranet.who.int/emt/sites/default/files/_A%20Field%20Guide.pdf, accessed 1 March 2022).
- Emergency medical teams. World Health Organization [website] (<https://www.who.int/emergencies/partners/emergency-medical-teams>, accessed 1 March 2022).
- A strategic framework for emergency preparedness. Geneva: World Health Organization; 2017 (<https://www.who.int/publications/i/item/a-strategic-framework-for-emergency-preparedness>, accessed 1 March 2022).
- Interagency Standing Committee (IASC) Emergency Response Preparedness Guidelines July 2015 – addresses Risk Analysis and Monitoring Minimum Preparedness Actions, Advanced Preparedness Actions and Contingency Planning. (https://interagencystandingcommittee.org/system/files/iasc_emergency_response_preparedness_guidelines_july_2015_draft_for_field_testing.pdf, accessed 1 March 2022).

R2. LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES

Target: Country conducts a rapid, multisectoral response for any event of suspected or confirmed deliberate origin, including the capacity to link public health and law enforcement, and to provide timely international assistance.

As measured by: Evidence of at least one response, in the previous year, that effectively links public health and law enforcement, or a formal exercise or simulation involving leadership from the country's public health and law enforcement communities.

Desired impact: Development and implementation of a MoU or other similar framework outlining roles, responsibilities and best practices for sharing relevant information between and among appropriate human and animal health, law enforcement and defence personnel, and validation of the MoU through periodic exercises and simulations. Countries will develop and implement model systems to conduct and support joint epidemiological and criminal investigations to identify and respond to suspected biological, chemical or radiological incidents of deliberate origin in collaboration with individual Biological and Toxin Weapons Conventions of States Parties, FAO, International Atomic Energy Agency (IAEA), International Criminal Police Organization (INTERPOL), OIE, Organisation for the Prohibition of Chemical Weapons, the United Nations Secretary-General's Mechanism for Investigation of Alleged Use of Chemical and Biological Weapons, WHO and other relevant regional and international organizations as appropriate.

Level	R2.1. Public health and security authorities, (e.g. law enforcement, border control, customs) are involved during a suspect or confirmed biological event	Choose one level
Level 1	No legislation, relationships, protocols, MoUs or other agreements exist between public health, animal health, radiological safety, chemical safety and security authorities to address all hazards	
Level 2	Points of contact and triggers for notification and information sharing have been identified and shared between public health, animal health, radiation safety, chemical safety and security authorities to address all hazards	
Level 3	MoU or other agreement/protocol, that includes at least roles, responsibilities, SOPs and information to be shared, exists between public health and authorities within the country and has been formally accepted to address all hazards	
Level 4	At least one public health emergency response or exercise in the previous year that included information sharing with security authorities using the formal MoU or other agreement/protocol related to all hazards. Public health and security authorities engage in a joint training programme to orient, exercise and institutionalize knowledge of MoU or other agreements related to all hazards	
Level 5	Public health and security authorities exchange reports and information on events of joint concern at national, intermediate and primary public health levels on a regular basis using the formal MoU or other agreement/protocol	

Technical questions

R2.1. Public health and security authorities (e.g., law enforcement, border control, customs) linked during a suspect or confirmed biological, chemical or radiological event

1. Is there a MoU or other agreement between public health and security authority entities at the national level?
 - a. If yes, which security authority organizations are covered by a MoU or other agreement – law enforcement, border control, customs enforcement, food safety inspection, radiological safety and chemical safety?
 - b. If not, is there a MoU or other agreement between public health and another sector (such as agriculture, defence, foreign affairs) that could be used as a sample agreement to promote information sharing and collaboration during emergency events? Are there agreements between public health and security authorities at any intermediate and/or primary public health response levels?
2. Have trainings been conducted jointly (at an intermediate or national level) including for both public health and security authorities on topics related to information sharing and joint investigations/responses?
3. Are there SOPs or agreements in place for coordination of a joint response to public health and other emergencies at official locations, such as PoEs where both public health and security authorities have operational safety and health security responsibilities?
4. Are there SOPs or agreements in place for a joint/shared risk assessment during events of public health and security significance?
5. Is there legislation in place that allows the government to detain/quarantine an individual who presents a public health risk?
6. How are potential biological, chemical and radiological events that may have deliberate motives identified in the country? Provide any plans that have been drafted that cover response to possible biological, chemical and radiological events.
7. Is there a functional mechanism for collaboration and timely and systematic information exchange between public health and law enforcement agencies in case of deliberate and/or accidental events?
8. Are public health experts involved in emergency response linked to the Biological and Toxin Weapons Conventions? Has the country participated in an exercise, simulation or response in the past year that involves leadership from both public health and security authorities?
 - a. If yes, describe the exercise, simulation or response.
 - b. Describe any corrective actions that were recommended on how the public health organization should coordinate with security authorities.
9. Are reports regularly shared between public health and any security authorities within the country? Is there a mechanism in place to encourage regular reporting?
 - a. What types of reports are shared from public health entities to security authorities regularly?

- b. What types of reports are shared from security authorities to the public health system regularly?
 - c. How often are the informational reports shared?
10. Is there a country-specific joint investigations curriculum in place to train public health and law enforcement entities on joint investigations?
 11. Describe how the national government is connected to INTERPOL. What ministry is charged with interacting with INTERPOL?

Documentation or evidence for level of capability:

- SOPs or emergency response plans that would include security authorities;
- informational reports that are regularly shared with security authorities.

References:

- WHO-OIE operational framework for good governance at the human-animal interface: Bridging WHO and OIE tools for the assessment of national capacities. WHO and OIE; 2014 (<https://www.who.int/publications/i/item/who-oie-operational-framework-for-good-governance-at-the-human-animal-interface>, accessed 2 March 2022).
- Terrestrial animal health code. Chapter 3.4 Veterinary legislation. World Organisation for Animal Health; 2016 (https://www.woah.org/fileadmin/Home/eng/Health_standards/tahc/2016/en_chapitre_vet_legislation.htm, accessed 2 March 2022).
- Convention on the prohibition of the development, production, stockpiling and use of chemical weapons and on their destruction. The Hague: Organisation for the Prohibition of Chemical Weapons (https://www.opcw.org/fileadmin/OPCW/CWC/CWC_en.pdf, accessed 2 March 2022).
- Treaty on the non-proliferation of nuclear weapons. IAEA [information circular] INFCIRC/140, 22 April 1970 (<https://www.iaea.org/sites/default/files/publications/documents/infcircs/1970/infcirc140.pdf>, accessed 2 March 2022).

R3. HEALTH SERVICES PROVISION

Targets: Resilient national health systems are essential for countries to prevent, detect, respond to and recover from public health events, while ensuring the maintenance of health systems functions, including the continued delivery of essential health services at all levels. Particularly in emergencies, health services provision for both event-related case management and routine health services are equally as important. Moreover, ensuring minimal disruption in health service utilization before, during and beyond an emergency and across the varied contexts within a country is also a critical aspect of a resilient health system.

As measured by: (1) Evidence of demonstrated application of case management procedures for events caused by IHR relevant hazards. (2) Optimal utilization of health services, including during emergencies. (3) Ensuring continuity of essential health services in emergencies.

Desired impact: Resilient health systems that are capable of delivering emergency related clinical care, and optimal utilization of health services while ensuring continuity of health systems functions including delivery of essential health services in emergencies.

Level	R3.1. Case management	Choose one level
Level 1	National clinical case management guideline for priority health events ⁹⁹ are not available or under development	
Level 2	National clinical case management guidelines for priority health events are developed but not being implemented ¹⁰⁰	
Level 3	National clinical case management guidelines for priority health events are developed and being implemented at the national level	
Level 4	National clinical case management guidelines for priority health events are developed and being implemented at national and intermediate levels	
Level 5	National clinical case management guidelines for priority health events are implemented at all levels and are exercised (as applicable), reviewed, evaluated and updated on regular basis	

Level	R3.2. Utilization of health services ¹⁰¹	Choose one level
Level 1	Very low levels of service utilization (number of outpatient department visits are < 1.0 visit/person/year in both urban and rural areas)	
Level 2	Low levels of service utilization (number of outpatient department visits are $1.0 \geq X < 2.0$ visits/person/year, in both urban and rural areas)	

⁹⁹ These should include SOPs with a list of designated referral health care facilities, referral procedures, field triage, safe transportation and case management guidelines to treat pathologies resulting from events included in the national list of priority health events (e.g., epidemic prone diseases, trauma, chemical events, radiation emergencies, etc.).

¹⁰⁰ Implementation of guidelines includes dissemination, orientation and training of health workers on guidelines and compliance/use with the guidelines in practice.

¹⁰¹ Utilization of health services is measured by the number of outpatient department visits per person per year. Up to a certain point, the utilization rate goes up when for instance, barriers to service provision are removed or minimized. This indicator can be used as a measure to ascertain the level of disruptions to health services during emergencies by noting changes in utilization rates for the same service during the same time/season. Reference source for health service utilization indicator – Global reference list of 100 core health indicators (plus health-related SDGs) (<https://apps.who.int/iris/handle/10665/259951>, accessed 3 November 2021).

Level	R3.2. Utilization of health services ¹⁰¹	Choose one level
Level 3	Satisfactory levels of service utilization in tertiary health care facilities at the national level (number of outpatient department visits are ≥ 2.0 visits/person/year, in both urban and rural areas)	
Level 4	Strong levels of service utilization at all tertiary and secondary health care facilities at intermediate and national levels and geographical contexts (number of outpatient department visits are ≥ 3.0 visits/person/year, in both urban and rural areas)	
Level 5	Strong levels of service utilization at all tertiary, secondary and primary health care facilities at national, intermediate and primary public health level and geographical contexts (number of outpatient department visits are ≥ 3.0 visits/person/year, in both urban and rural areas) and information on service utilization is reviewed, evaluated and updated on a regular basis to inform policy and planning	

Level	R3.3. Continuity of essential health services (EHS)	Choose one level
Level 1	A package of EHS is not defined and there are no plans or guidelines for continuity EHS during emergency	
Level 2	A package of EHS is defined but plans/guidelines on continuity of EHS in emergencies is not developed	
Level 3	A package of EHS and plans/guidelines on continuity of EHS in emergencies are developed and mechanism for monitoring service continuity during emergency are in place at the national level	
Level 4	A package of EHS and plans/guidelines on continuity of EHS in emergencies are developed and mechanism for monitoring service continuity during emergency are in place at national and intermediate levels	
Level 5	A package of EHS, plans/guidelines on continuity of EHS in emergencies, and mechanisms for monitoring service continuity based on existing guidelines are defined and functional at national, intermediate and primary public health levels and exercised, reviewed, evaluated and updated, with improvements based on simulation exercises and lessons learned from real-world events, e.g., IARs or AARs	

Contextual questions

1. Do the health sector plan and national emergency preparedness and response plans (or equivalent) have explicit consideration for continuity of EHS (including population-based services) during emergencies?
2. Have there been recent health facility assessments (or equivalent) and when were they conducted?
3. Has a strategic tool for assessing risks, or vulnerability risk analysis and mapping been conducted and used to inform the defined list of priority conditions?
4. Is there an integrated/aligned mechanism to ensure health information system and its data (surveillance, service delivery, service utilization) ensures streamlined, quality data flow and reporting from facility to national level public and private health service providers, to inform effective policy and decision-making?

Technical questions

R3.1. Case management

1. Are there recently developed or updated national clinical case management guidelines available?
 - a. When were they last updated or developed?
 - b. What is the scope of these guidelines – do they cover some or all nationally defined priority conditions? Do they cover all hazards according to IHR (2005)?
2. At which levels of the health service delivery are the plans/guidelines available (national, intermediate and primary public health)?
3. Are health services specific for case management available at facilities at the national level (e.g., tertiary and/or quaternary level hospitals)?
 - a. Are these documented in the relevant policy/planning (e.g., package of essential services, health sector strategic plan, enterprise resource planning or as relevant)?
 - b. Has a mapping of available required resources (and available) for case management for the emergency priority conditions been done at the different levels (national, intermediate and facility levels)?
4. Are there case management referral protocols in place for every level of service delivery?
 - a. Are these embedded in the national case management guidelines?
 - b. Are these available to health facilities and their staff (including training) at every level of care?
 - c. Do you think these referral systems are functional?
 - i. Does this include the availability of the enabling environment (logistics, transport, resources, communication, payment)?
 - ii. Is the functionality of these protocols tested routinely through SimExs?
5. Are these services also available at the regional/district level facilities (secondary)?
6. Are they also available at primary level facilities?

R3.2. Utilization of EHS

1. Is there a dedicated responsible authority and functional mechanism to monitor health systems performance, including utilization of services during and beyond emergency contexts?
 - a. Is there a system in place to assess, track and monitor public trust in the health system (e.g., public health interventions) to inform policy, planning and implementation?
 - b. During emergencies, how is this data used to monitor disruptions in essential service delivery and how does it inform response efforts and other planning?
2. Do routine health management information system/district health information software or other available health information management systems monitor service utilization?
 - a. How is this data analysed and reported to the responsible national or intermediate authority and policy-makers?

- b. How is this data disaggregated? Geographical, gender, income, catchment area, urban/rural, private/state facilities, etc.?
- 3. Is there an established national facility/provider accreditation system or other national external evaluation systems, to ensure quality services and public trust for continued service utilization during emergencies?
 - a. Is there a system (e.g., set of national standards, dedicated authority, funding, legislation) for health facility licensing and accreditation including private service providers?

R3.3. Continuity of EHS

1. Is there a nationally defined essential package of services (or equivalent) available?
 - a. Which are the designated EHS?
2. Do the health sector plan and national emergency preparedness and response plans (or equivalent) have explicit consideration for continuity of EHS (including population-based services) during emergencies?
3. Is there an essential health service continuity plan/guideline or dedicated section in other emergency operations/management plans available?
 - a. What approaches are being used to ensure access to care for marginalized and vulnerable populations?
 - b. Does the response plan integrate attention to potential unintended and inequitable consequences of policy measures (e.g., shutdowns, curfews), including on marginalized and vulnerable groups (e.g., gender-based and domestic violence)?
4. Is there a function EOC plan (or equivalent), adapted from the emergency preparedness and response plan, activated in emergency times
 - a. Is it funded and resourced (identified budget line, responsible function, structure/mechanism) for its oversight and implementation?
 - b. Do the EOC plan and protocol and its activation provide explicit reference to representation and participation of health systems focal points, to ensure stewardship, funding and monitoring of EHS?
5. What systems are in place to ensure continued monitoring of the continuity of EHS routinely and during emergencies?
 - a. Are these mechanisms identified and documented in the continuity plans/guidelines?
6. How often is the functionality of the plans/guidelines and systems in place tested and reviewed through, for example, SimExs, post event reviews?
 - a. Are these conducted at national, intermediate and primary public health levels?
 - b. How do you ensure multisectoral, multidisciplinary participation involving all relevant stakeholders, during the SimExs and post event reviews?
 - c. How do the findings from these exercises and post event reviews inform an improvement process, including the review and update of the plans?

R4. INFECTION PREVENTION AND CONTROL

Targets: To have strong, effective infection prevention and control (IPC) programmes that enables safe health care and essential services delivery and prevention and control of health care acquired infections (HCAIs). It is critical to initially ensure that at least the minimum requirements for IPC are in place, both at the national and facility level, and to gradually progress to the full achievement of all requirements within the WHO IPC core components recommendations.

As measured by: (1) National IPC programme strategy has been developed and disseminated. (2) Implementation of the national IPC programme plans, with monitoring and reporting of HCAIs. (3) Established national standards and resources for safe health facilities.

Desired impact: Prevent HCAIs and emergence and spread of AMR.

Level	R4.1. IPC programmes	Choose one level
Level 1	An active ¹⁰² national IPC programme ¹⁰³ or operational plan according to the WHO minimum requirements ¹⁰⁴ is not available or is under development	
Level 2	An active national IPC programme or operational plan according to WHO minimum requirements exists but is not fully implemented. National IPC guidelines/standards exist but are not fully implemented	
Level 3	An active national IPC programme exists, and a national IPC operational plan according to the WHO minimum requirements is available including role of IPC in outbreaks and pandemic. National guidelines/standards for IPC in health care are available and disseminated. Selected health facilities are implementing guidelines using multimodal strategies, ¹⁰⁵ including health workers' training and monitoring and feedback	

¹⁰² "Active" is defined as a functioning programme with annual workplans and budget.

¹⁰³ IPC programmes should have clearly defined objectives based on local epidemiology and priorities according to risk assessment, and defined functions and activities that align with and contribute towards the prevention of health care-associated infections (HAIs) and AMR in health care. They should also include dedicated, trained IPC professionals. See the WHO Guidelines on core components of IPC programmes at the national and acute health care facility level for more information (<https://www.who.int/publications/i/item/9789241549929>, accessed 16 March 2022).

¹⁰⁴ IPC minimum requirements are minimum standards identified by WHO and key IPC stakeholders and country representatives, that should be in place at both national and health facility level to provide minimum protection and safety to patients, health care workers and visitors, based on the WHO recommendations on the core components for IPC programmes. The existence of these requirements constitutes the initial starting point for building additional critical elements of the IPC core components according to a stepwise approach based on assessments of the local situation. For more information, see the WHO minimum requirements for IPC programmes (<https://www.who.int/publications/i/item/9789241516945>, accessed 3 November 2021) and Assessment tool of the minimum requirements for infection prevention and control programmes (<https://www.who.int/publications/m/item/assessment-tool-of-the-minimum-requirements-for-infection-prevention-and-control-programmes-at-the-national-level>, accessed 26 November 2021).

¹⁰⁵ A multimodal strategy comprises several components or elements (three or more, usually five) implemented in an integrated way with the aim of improving an outcome and changing behaviour. It includes tools, such as bundles and checklists, developed by multidisciplinary teams that consider local conditions. The five most common elements include: (i) system change (availability of the appropriate infrastructure and supplies to enable IPC good practices); (ii) education and training of health care workers and key players (for example, managers); (iii) monitoring infrastructures, practices, processes, outcomes and providing data feedback; (iv) reminders in the workplace/communications; and (v) culture change within the establishment or the strengthening of a safety climate (For further information see: <https://www.who.int/publications/m/item/who-multimodal-improvement-strategy>, accessed 16 March 2022).

Level	R4.1. IPC programmes	Choose one level
Level 4	An active national IPC programme is available according to WHO IPC core components guidelines ¹⁰⁶ and is leading implementation of the national IPC operational plan and guidelines nationwide using multimodal strategies, including health workers' training and monitoring and feedback in place. National IPC programme is actively engaged in health care outbreaks and pandemic planning. More than 75% of health care facilities meet WHO minimum requirements for IPC programmes, guidelines, training, and monitoring/feedback	
Level 5	IPC programmes are in place and functioning at national and health facility levels according to the WHO IPC core components and their compliance and effectiveness are exercised (as applicable), reviewed, evaluated and published or available. Plans and guidance are regularly updated in response to monitoring and feedback. National, intermediate and local IPC programmes actively coordinate and are engaged in health care outbreaks and pandemic planning	

Level	R4.2. HCAI surveillance	Choose one level
Level 1	No national HCAI surveillance programme or national strategic plan for HCAs surveillance, including pathogens that are antimicrobial resistant and/or prone to outbreaks is available or under development	
Level 2	A national strategic plan for HCAs surveillance (including pathogens that are antimicrobial resistant and/or prone to outbreaks) is available but not implemented	
Level 3	A national strategic plan for HCAs surveillance (including pathogens that are antimicrobial resistant and/or prone to outbreaks) is available and implemented through a national programme and system for data collection, analysis and feedback. Selected secondary and tertiary health care facilities are conducting HCAs surveillance (as specified above) and provide timely and regular feedback to senior management and health workers	
Level 4	A national strategic plan for HCAs surveillance (including pathogens that are antimicrobial resistant and/or prone to outbreaks) is available and implemented nationwide in all secondary and tertiary health care facilities through a national system according to the WHO recommendations on IPC core components. Regular reports are available for providing feedback	
Level 5	A national strategic plan for HCAs surveillance (including pathogens that are antimicrobial resistant and/or prone to outbreaks) are available and implemented nationwide in all secondary and tertiary health care facilities through a national programme and system according to the WHO recommendations on IPC core components. Data are shared and being used continuously and in a timely manner to inform prevention efforts. The quality and impact of the system are regularly evaluated, and improvement actions are taken accordingly	

¹⁰⁶ These guidelines are to provide evidence- and expert consensus-based recommendations on the core components of IPC programmes that are required to be in place at the national and facility level to prevent HCAI and to combat AMR through IPC good practices. They are intended to provide a feasible, effective and acceptable framework for the development or strengthening of IPC programmes.

Level	R4.3. Safe environment in health facilities	Choose one level
Level 1	National standards and resources for safe built environment ¹⁰⁷ e.g., WASH, screening, isolation areas and sterilization services in health care facilities, ¹⁰⁸ including appropriate infrastructure, materials and equipment for IPC; as well as standards for reduction of overcrowding and for optimization of staffing levels in health care facilities are not available or under development	
Level 2	National standards and resources for a safe built environment e.g., WASH, screening, isolation areas and sterilization services in health care facilities, including appropriate infrastructure, materials and equipment for IPC; as well as standards for reduction of overcrowding and optimization of staffing levels in health care facilities, according to WHO minimum requirements, exist but they are not fully implemented through a national plan	
Level 3	National standards and resources for safe built environment, e.g., WASH, screening, isolation areas and sterilization services in health care facilities, including appropriate infrastructure, materials and equipment for IPC; as well as standards for reduction of overcrowding and optimization of staffing levels in health care facilities, according to WHO minimum requirements, exist and are implemented in selected health care facilities at a national level according to a national plan	
Level 4	National standards and resources for safe built environment, e.g., WASH, screening, isolation areas and sterilization services in health care facilities, including appropriate infrastructure, materials and equipment for IPC; as well as standards for reduction of overcrowding and optimization of staffing levels in health care facilities, according to WHO minimum requirements, are implemented at national and intermediate levels according to a national plan	
Level 5	National standards and resources for safe built environment, e.g., WASH, screening, isolation areas and sterilization services in health care facilities, including appropriate infrastructure, materials and equipment for IPC; as well as standards for reduction of overcrowding and for optimization of staffing levels in health care facilities, according to WHO minimum requirements, are implemented at national and intermediate levels according to a national plan, and are regularly exercised (as applicable) and monitored and improvement actions are taken accordingly	

Technical questions

R4.1. IPC programmes

1. Is there a national plan for IPC in health care settings? How often is the plan updated and reviewed?
2. How many health care facilities have developed local IPC plans? Are these plans evidence based? Have findings from monitoring and evaluation of IPC measures been used to develop IPC plans?

¹⁰⁷ See definition of "Safe environment" in the Glossary.

¹⁰⁸ For global standards on WASH in health care facilities refer to: Adams J, Bartram J, Chartier Y. Essential environmental health standards in health care. Geneva: World Health Organization; 2008 (<https://apps.who.int/iris/handle/10665/43767>, accessed 16 March 2022). WASH in health care facilities should include national WASH policy and standards, operational strategy, and facility guidelines, education and training programmes, and surveillance, monitoring and audit, and maintenance of essential WASH services (see WHO website: <https://www.who.int/teams/environment-climate-change-and-health/water-sanitation-and-health>, accessed 2 April 2018).

3. Which core components of IPC programmes are part of national and health care facility level IPC plans?
 - a. Do IPC plans include guidelines and procedures for standard and transmission-based precautions? If not, where are they addressed?
4. Do all hospitals have IPC guidelines in place including routine monitoring and provision of feedback on health care practices according to IPC standards? Is there a functioning IPC team or focal point at facility level?
5. Does all pre-service health care professional training curricula include an IPC module?
6. Are there designated trained IPC focal points in all secondary and tertiary acute care facilities?
7. Is hand hygiene compliance measured and feedback provided routinely at the national level? Is there monitoring to ensure supplies of preventive equipment and alcohol-based hand rub?
8. What systems are in place at national or intermediate levels to regularly monitor health care practices according to IPC standard measures, and to publish the results?
9. Is there a national surveillance programme for HAI in place? How does HAI data inform policy for antimicrobial prevention?

R4.2. HCAI surveillance

1. Is there national a HCAI surveillance programme established and supported (including financially) by the government and national authorities?
2. Is there a national system for HCAI surveillance to support data collection, analysis and feedback? Are HCAI findings used to inform health care facilities (HCFs) and national action plans?
3. Is the national HCAI surveillance programme supported by trained staff?
4. Are standardized definitions and appropriate methods used to conduct HCAI surveillance?
5. Is there good quality laboratory support to support HCAI surveillance
6. Does the national HCAI surveillance programme use data to provide feedback and inform regular plan reviews and updates?
7. Is there quality control and evaluation of the HCAI surveillance programme?
8. How many hospitals (percentage of total number of hospitals) are (will be) able to conduct surveillance of HCAs including infections caused by antimicrobial-resistant pathogens among humans?
9. Does the HCAI surveillance programme have linkages to other surveillances and health information systems and national networks?

R4.3. Safe environment in health facilities

1. Are standards, guidelines or procedures for safe environment in health facilities disseminated to all health care facilities?
2. Do all HCFs have safe water? How much progress has been made on ensuring safe WASH facilities in health care facilities and communities?
3. Is the assessment of WASH included in assessments of the safety and functionality of health facilities for emergencies?

4. Do all HCFs have safe water? How much progress has been made on ensuring safe WASH facilities in health care facilities and communities?
5. Do all HCFs have isolation areas?
6. Do all HCFs have sterilization services?
7. Is there a national, intermediate or health care facility-based programme on continuing professional training for health workers that includes key guiding principles for safe environment in health care facilities?
8. Does the continuing professional training include
 - a. WASH in health care facilities?
 - b. Patient isolation in health care facilities?
 - c. Sterilization services in health care facilities?

References:

- Guidelines on core components of IPC programmes at the national and acute health care facility. Geneva: World Health Organization; 2016 (<https://apps.who.int/iris/handle/10665/251730>, accessed 2 March 2022).
- WHO minimum requirements for IPC programmes for more information: <https://www.who.int/publications/i/item/9789241516945>, accessed 2 March 2022.
- Essential environmental health standards in health care. Geneva: World Health Organization; 2008 (<https://www.who.int/publications/i/item/9789241547239>, accessed 2 March 2022).

R5. RISK COMMUNICATION AND COMMUNITY ENGAGEMENT

Target: States Parties use multilevel, multisectoral and multifaceted risk communication and community engagement (RCCE) capacity for public health emergencies. Real-time exchange of information, advice and opinions during unusual and unexpected events and emergencies so that informed decisions to mitigate the effects of threats, and protective and preventive action can be made. This includes a mix of communication and engagement strategies, such as media and social media communications, mass awareness campaigns, health promotion, social mobilization, stakeholder engagement community engagement and infodemic management.

As measured by: (1) Formal government RCCE plans, arrangements and systems, including coordination mechanisms are in place. (2) Evidence that public communication including relevant aspects of infodemics management operates efficiently and effectively; and risk communication units systematically engage populations at community level during emergencies. (3) Existence of formal infodemic management plans as well as arrangements and systems to gather information on perceptions, risky behaviours and misinformation to analyse public concerns and fears.

Desired impact: Responsible entities actively listen, respond to concerns of the public and effectively engage the public and communicate, through media, social media, mass awareness campaigns, health promotion, social mobilization, stakeholder engagement. The desired outcome of effective risk communication is to mitigate the potential negative impact of health hazards before, during and after public health emergencies or unusual events.

Level	R5.1. RCCE system for emergencies	Choose one level
Level 1	Mechanisms ¹⁰⁹ for RCCE functions ¹¹⁰ and resources ¹¹¹ including relevant aspects of infodemic management, behavioural and cultural insights, are under development; implementation and coordination of RCCE activities are conducted on an ad hoc basis	
Level 2	Mechanisms RCCE functions and resources including relevant aspects of infodemic management, behavioural and cultural insights, are in place and coordination of activities are conducted on a regular basis	
Level 3	National RCCE functions are established and being implemented, as well as relevant aspects of infodemic management, behavioural and cultural insights. There is dedicated but insufficient human and financial resources; and multisectoral coordination with multiple technical areas is occurring but limited	

¹⁰⁹ Mechanisms include plans, SOPs, guidelines, policies and procedures such as, multihazard and multisectoral plans for coordination of RCCE functions; formal government arrangements, including policies and procedures, for data sharing and coordination of infodemic management and RCCE functions as well as arrangement for scale up in emergencies; quality assurance processes for communication products; and integration of RCCE within the EOC or IMS.

¹¹⁰ Functions include training of RCCE personnel, communication with other sectors, transparent and early/regular communication with target audiences through conventional media (print and broadcast), online and offline media monitoring to shape messages and strategies; analyses of target audiences based on online and offline community listening to inform design of communications, interventions and programmatic improvements

¹¹¹ Resources include, finance; skilled staff (e.g., at least a risk communication specialist sitting in the emergency response team, adequate number of qualified staff, a trained spokespersons) and arrangements for workforce surge; equipment and materials (e.g., information, education, and communication (IEC) materials); communication platforms for coordination of RCCE functions.

Level	R5.1. RCCE system for emergencies	Choose one level
Level 4	National RCCE systems are fully operational; and there is harmonized coordination among all key technical areas. RCCE has adequate number of skilled and/or trained personnel and volunteers, and adequate financial resources. The national multihazard, multisectoral RCCE plans are reviewed at least every 24 months. RCCE has arrangements in place for scale up as evidenced by a SimEx or tested during a real health emergency. Evidence and data gathered from review of RCCE activities are used for measurement, evaluation, learning and continuous improvement on RCCE interventions	
Level 5	RCCE systems and resources are operational across all levels and relevant sectors, including community-led readiness and response interventions; RCCE systems and resources are fully integrated into emergency response systems. The national level collaborates with and supports intermediate and community levels to use national and local socio-behavioural and epidemiologic data for tailored local risk communication for communities. Evidence and data gathered are systematically used for measurement, evaluation, learning and continuous improvement of RCCE interventions ¹¹²	

Level	R5.2. Risk communication	Choose one level
Level 1	Mechanisms for public communication, including relevant aspects of infodemic management, are under development or implemented on an ad hoc basis ¹¹³ by non-specialist professionals with a near-exclusive focus on conventional media	
Level 2	Mechanisms for public communication, including infodemic management, are developed but not fully implemented with significant gaps ¹¹⁴ by specialists with minimal online and social media presence	
Level 3	Risk communication plans, policies and procedures for response and coordination are in place. Risk communication function is included in the emergency response structure and appointed spokespersons are trained in risk communication. Infodemics management and insights analysis are functioning in a routine manner. There is some analysis of target audiences based on language, trusted information resources and preferred communication channels to inform risk communication interventions	

¹¹² The national multihazard, multisectoral RCCE plan is reviewed at least every 24 months. Evidence and data gathered are systematically used for measurement, evaluation, learning and continuous improvement on RCCE interventions. Response to concerns, questions and confusion in communities are proactively anticipated, addressed and potential harm from the infodemic is effectively mitigated on time in the right place.

¹¹³ The work is limited to conventional media. There are no risk communication specialists in the national IMS team or EOC. There is no focus on addressing the overwhelming amount of information including mis/disinformation (e.g., no social listening activities to capture online or offline conversations from the population, or proactive strategies to increase resilience to infodemics or health misinformation).

¹¹⁴ Gaps may include limited implementation of best practices and community listening activities to inform design of communication strategy. Trained risk communicators serve as surge staff in an emergency and are resourced to conduct media relations and maintain a basic online presence. There is little infodemic management activity, through social listening activities that track a few online or offline sources and dissemination of risk.

Level	R5.2. Risk communication	Choose one level
Level 4	There is planned communication with ongoing proactive outreach through a variety of channels (e.g., hotline, complaint systems, social listening); online and offline media are monitored daily for feedback, and insights and data are used to adjust and improve risk communication strategies. There is strong infodemic management using search mechanisms for online or/and offline sources to shape messages and strategies. There is coordination of risk communication strategies and messages across sectors and levels of government	
Level 5	Risk communication activities are implemented through a whole-of-government approach, with the involvement of all actors including international and national partners, media and influencers. ¹¹⁵ Communication is conducted through online and offline channels in a timely, ¹¹⁶ accessible and understandable way. Evidence and data gathered through measurement and evaluation are used systematically for continuous learning and improvement of RCCE interventions	

Level	R5.3. Community engagement	Choose one level
Level 1	Mechanisms for community engagement in public health emergencies, including guidelines and/or SOPs, are in development. Community engagement activities ¹¹⁷ are largely one-way information sharing activities and limited to disease control programmes – such as maternal and child health, malaria, tuberculosis, HIV/AIDS, polio, neglected tropical diseases. Community engagement efforts are not systematically linked to the emergency response ¹¹⁸	
Level 2	Mechanisms for systematic community engagement in public health emergencies, including guidelines and/or SOPs, have been developed. Community engagement activities involve some community participation, including consulting and gathering their feedback on decisions and actions	

¹¹⁵ Coordination of RCCE involve the whole-of-government and sectors; international and national partners. Coordination is facilitated through online and offline channels of communication in an accurate, timely and understandable way. Risk communication includes a culture of learning and collaboration with social science researchers. An interdisciplinary team routinely uses online and offline community listening activities to conduct integrated analyses to tailor design of communications, interventions and programmatic improvements.

¹¹⁶ Information provided regarding the emergency situation should be up to date, timely and should include government response and health recommendations. A dedicated infodemic management or behavioural insights team is connected to RCCE and other components of emergency response.

¹¹⁷ Community activities include establishment of intermittent two-way community feedback communication channels (e.g., hotline, complaint systems, social listening); collection of data from qualitative and quantitative sources including socio-behavioural research of affected and at-risk populations; analysis and integration of social-behavioural and epidemiological data to inform decision-making (e.g., vaccine confidence, or vaccine distribution); training social mobilization and community engagement teams including volunteers regularly; scaling up and operationalization of surge capacities; mapping of stakeholders, engagement and activation of stakeholders at national and intermediate levels including community influencers such as opinion and religious leaders, civil society and community based organizations as part of the emergency response system; development of IEC materials; and briefings and training of social mobilization and community engagement teams including volunteers.

¹¹⁸ Community engagement may be conducted by nongovernmental entities on specific health topics but are not systematically linked to the governmental health system. Some key stakeholders are identified locally. Civil society organizations are not connected to government-level emergency response mechanisms.

Level	R5.3. Community engagement	Choose one level
Level 3	Communities are actively involved in emergency response and co-design emergency response initiatives. Stakeholders, such as community leaders, faith-based organizations and civil society are mapped and but only engaged on ad hoc basis. Formal or informal community feedback mechanisms, such as hotlines and social-behavioural research, are established and used to inform emergency responses. Community engagement coordination mechanisms exist at national and intermediate and community levels	
Level 4	Communities are actively involved in emergency response and co-design emergency response initiatives. Stakeholders, such as community leaders, faith-based organizations, and civil society are mapped and systematically engaged. Emergency responders are trained and surge capacity mechanisms for community engagement are in place and operational. Collection and analysis of community feedback and socio-behavioural data at national, intermediate and primary public health response level is conducted on an ad hoc basis	
Level 5	Communities are active partners in emergency response and participate in planning, design and implementation of interventions. There is systematic collection and analysis of community feedback, socio-behavioural and infodemics insights data at national, intermediate and primary public health response level. ¹¹⁹ Evidence gathered from data analysis are used systematically for continuous improvement of community engagement response to health emergencies	

Technical questions

R5.1. RCCE systems for emergencies

1. Is there a communication strategy that proactively reaches out to a variety of media platforms (such as newspapers, radio, television, social media, Internet) for targeting communication messages to specific audiences?
2. Is there an infodemic management strategy in place, and that seeks varied data sources and partnerships from within and external to the health authority to coordinate and develop more comprehensive insights?
3. Is there a function for RCCE in the country's national response plan?
4. Is there a function for infodemic management in the country's national response plan?
5. Are the roles and responsibilities of the RCCE staff articulated in a response plan?
6. Are the roles and responsibilities of the infodemic management staff articulated in a response plan?
7. Which government entities/agencies have the lead for risk communication for different types and magnitudes of emergencies?
8. Where are the functions of the infodemic management placed and where are the data sources they have available to them?

¹¹⁹ Response decisions are informed by qualitative and quantitative socio-behavioural research. Social-behavioural data and epidemiological data are used in an integrated and equal way to inform decision-making. Response to concerns, questions and confusion in communities are proactively anticipated and addressed, and the effectiveness of response is monitored and evaluated.

9. Are there communications personnel or government departments that respond to public information needs during emergencies?
10. Is training for responding to local hazards provided to risk communications personnel?
11. Is there permanent or surge staff dedicated to infodemic management, RCCE during emergencies?
12. Are there improvements that could be made in the staffing, platforms, data access, partnership agreements, financial resources or other factors to improve infodemic management and communications with public and partners during emergencies?
13. Are there shared infodemic management and/or communication plans, agreements and/or SOPs between other response agencies, such as public safety, law enforcement, hospitals, emergency response, Red Cross and Red Crescent and/or government agencies, such as ministries of defence, agriculture, food/drug?
14. Is there a dedicated budget line for infodemic management and communications personnel, materials, technologies and activities for emergencies?
15. Are plans tested at least once every year?

R5.2. Risk communication

1. Are there mechanisms to coordinate communication among internal, national, international stakeholders (e.g., hospitals, civil society, private sector) and response agencies during an emergency?
2. Are people's perceptions, questions, concerns, information voids, unfounded beliefs, health behaviours and health misinformation they are exposed to monitored?
3. Are there methods used to address questions, concerns, information voids and unhealthy behaviours or to correct health misinformation, and are they evaluated for effectiveness?
4. Is there a process in place to use analysis from media and social media monitoring to identify priorities in addressing health misinformation effectively?
5. Is there a communications strategy in place that is implemented in an emergency by first identifying and segmenting target populations, including marginalized and vulnerable groups and addressing barriers to access in information?
6. Are there methods specified for delivering information in ways that acknowledge the identifications, concerns and esteem builders for different groups of people?
7. Is the implementation of communication considering tactics in mode, style, tone, presence and engagement of addressing the intended audience?
8. Is public health messaging tested with the target population before use, is it adapted to the target community (geographical or other) to fill their information needs and deliver the message at the right time, using appropriate format (medium, genre, pacing) with special attention to the barriers faced by marginalized and vulnerable populations)?
9. Have there been incidents where stakeholder/partner agencies have released late or contradicting information?
10. Have there been instances of delays in the release of information due to a lack of agreement between key partners during an emergency?

11. Is there a communication team dedicated to media and social media?
12. Is there a media spokesperson appointed?
13. Is media research conducted to determine if a message reaches the target audience?
14. Is there a fast track process for clearing media and social media products that includes scientific review?
15. Has an exercise for testing communication coordination with partner organizations been conducted?
16. Has there been evaluation of communication function performance for past emergencies?

R5.3. Community engagement

1. Is there a team for social mobilization, health promotion or community engagement dedicated that is used for emergency response?
2. Is the social mobilization, health promotion or community engagement dedicated team integrated within the overall emergency response?
3. Does the social mobilization, health promotion or community engagement dedicated team have mechanisms to reach out to affected or at-risk populations during health emergencies at national all levels (national, intermediate and primary public health)?
4. Has a baseline survey been conducted to provide information on population's risk or the ability to withstand the top five hazards (e.g., mapping of languages, living conditions, religious/cultural practices/trusted channels of communication, influencers)?¹²⁰
5. Is social mobilization, health promotion or community engagement included in the national response plan?
6. Are members of the dedicated community engagement team, including volunteers and surge capacity, able to access training regularly?
7. Is there an ongoing and functioning feedback loop between at-risk or affected populations and response agencies including outreach and representation focused on marginalized or vulnerable groups?
8. Is the community engagement function strategically managed, developed and leveraged, and considers how the community engagement has historically been conducted routinely and also during emergencies?
9. Is there a system to exchange feedback with specific communities, especially vulnerable ones?
10. Does the community engagement function measure the strength, form and quality of community engagement with target communities before, during and after an emergency?
11. Do community engagement functions leverage infodemic insights to improve or sharpen their strategies?
12. Is community trust measured and improved upon?

¹²⁰ Influencer: one who exerts influence – a person who inspires or guides the actions of others (Influencer. Merriam-Webster.com Dictionary, Merriam-Webster (<https://www.merriam-webster.com/dictionary/influencer>, accessed 2 March 2022).

13. Are socio-behavioural insights generated about communities and used for infodemic management and for improved community engagement planning?

Additional documents:

- a. media department strategy, community outreach plans, media response plans,
- b. organizational chart,
- c. emergency risk communication staff plans, surge plan,
- d. emergency response budget sample and long-term budget plan,
- e. mechanism of sharing plan alteration,
- f. data from public health hotline (e.g., relevant questions from the public),
- g. knowledge, attitude and practice surveys,
- h. reports from social scientists and anthropologists involved in the response,
- i. social media monitoring,
- j. partner coordination meeting records,
- k. response reports,
- l. news stories during past emergencies,
- m. plans for communication coordination with external agencies,
- n. after action reports from exercises or emergency responses,
- o. agreed upon response plan and coordinated budget plan for emergency communication,
- p. communication research protocols and publications (formal/informal),
- q. examples of misinformation and methods for handling them,
- r. baseline surveys and maps of social data related to increased risk for top five hazards,
- s. risk assessments that address the most likely local public health threats,
- t. community outreach plan.

IHR RELATED HAZARDS AND POINTS OF ENTRY AND BORDER HEALTH

PoE: POINTS OF ENTRY AND BORDER HEALTH

Targets: States Parties designate and maintain core capacities at international airports and ports (and were justified for public health reasons, a State Party may designate ground crossings) that implement specific public health measures required to manage a variety of public health risks.

As measured by: (1) A public health emergency contingency plan for all hazards is developed and functioning at designated PoE.¹²¹ (2) A national multisectoral process to determine the adoption of international travel-related measures is developed and functioning. (3) Core capacities prescribed in the IHR Annex 1B "1. At all times" are developed and functioning in an all-hazard and multisectoral approach.

Desired impact: Timely detection of and effective response to any potential hazards that occur at PoEs.

Level	PoE1. Core capacity requirements at all times for PoEs (airports, ports and ground crossings)	Choose one level
Level 1	A strategic risk assessment for the designation of individual PoEs as an integral part of a national risk assessment has not been completed	
Level 2	Some designated PoEs are implementing some of the routine core capacities ¹²² based on a completed associated strategic risk assessment	
Level 3	Some designated PoEs are implementing all the routine core capacities and these designated PoE are integrated into the national surveillance system for biological hazards/all hazards (e.g., event-based and early warning surveillance)	
Level 4	All designated PoEs are implementing routine core capacities with an all-hazard and multisectoral approach integrated into the national surveillance system. Other non-designated PoEs are integrated into the national surveillance system	
Level 5	Routine core capacities implemented at all designated PoEs are exercised, reviewed, evaluated, updated and actions are taken to improve capacity on a regular basis	

Level	PoE2. Public health response at PoEs	Choose one level
Level 1	PoEs designated based on a strategic risk assessment are in the process of developing a PoE multisectoral public health emergency contingency plan ¹²³	

¹²¹ "Point of entry" means a passage for international entry or exit of travellers, baggage, cargo, containers, conveyances, goods and postal parcels as well as agencies and areas providing services to them on entry or exit (IHR (2005)).

¹²² The routine core capacity requirements include assessment and medical care, staff and equipment; equipment and personnel to transport ill travellers; trained personnel for inspection of conveyances; ensuring a safe environment (e.g., water, food, waste); and trained staff and a programme for vector control, as set out in Annex 1B.

¹²³ PoE public health emergency contingency plan (IHR (2005)) for public health events, including potential PHEIC. Plan should consider functional capacities as set out in Annex 1B.2.

Level	PoE2. Public health response at PoEs	Choose one level
Level 2	Some designated PoEs have developed a PoE multisectoral public health emergency contingency plan for events caused by biological hazards	
Level 3	All designated PoEs have developed PoE multisectoral public health emergency contingency plans for events caused by biological hazards and are integrated into national surveillance systems and emergency response plans. ¹²⁴ Other non-designated PoEs are integrated into the national surveillance system ¹²⁵	
Level 4	All designated PoEs have developed PoE multisectoral public health emergency contingency plans for events caused by all hazards and integrated into national emergency response plans. Contingency planning is conducted at some non-designated PoEs	
Level 5	All PoE public health emergency contingency plans for events caused by all hazards all designated PoEs are exercised, reviewed, evaluated and updated on a regular basis. Some non-designated PoEs have developed PoE multisectoral public health emergency contingency plans for events caused by all hazards and are integrated into national emergency response plans	

Level	PoE3. Risk-based approach to international travel-related measures ¹²⁶	Choose one level
Level 1	National multisectoral mechanism to conduct risk-based approaches for strategic planning for international travel-related measures, including prevention, detection/investigation, response and recovery, is under development	
Level 2	A national multisectoral strategy for international travel related measures is developed based on a risk-based approach with identified and assigned responsibilities	
Level 3	Guidelines and SOPs are developed to facilitate the implementation of the strategy for international travel-related measures. Country has capacities/arrangements are in place to calibrate and implement the national multisectoral strategy for international travel-related measures	
Level 4	Country has capacities/arrangements are in place to implement, adjust and adapt international travel related measures that are commensurate to the risks and to implement the national multisectoral strategy for international travel-related measures	
Level 5	Country has conducted at least one review, exercise or evaluation (either through an actual event or an exercise) at national and/or intermediate levels to test the national multisectoral strategy for international travel-related measures, and updated accordingly ¹²⁷	

¹²⁴ Consistent with any applicable international agreements.

¹²⁵ Coordinated public health surveillance between PoEs and national health surveillance systems: advising principles. Geneva: World Health Organization; 2014 (<https://apps.who.int/iris/handle/10665/144805>, accessed 2 August 2021).

¹²⁶ For the purpose of this document, international travel-related measures refer to health measures that are applied to travellers, baggage, containers, conveyances or goods, such as the application of screening, quarantine or isolation, or the temporary interruption of international traffic, for the purpose of preventing the possible spread of infection or contamination.

¹²⁷ A multisectoral process to determine the adoption of international travel related measures on a risk-based manner includes mechanisms to conduct risk assessments and implement risk mitigations measures at national, intermediate and local levels, including within the PoE premises, for prevention, detection/investigation, response and recovery, which may be operationalized through national plans, guidelines and SOPs.

Contextual questions

1. How many PoEs are designated?
2. How many PoEs have health or public health staff posted at them or readily available?
3. Has a strategic risk assessment been conducted to decide upon the designation of PoEs based on the criteria mentioned in WHO Assessment tool for core capacity requirements at designated airports, ports and ground crossings?
4. Do adequate legislation and/or policies exist for the provision of health services for ill travellers and in response to public health events at PoEs in the country?¹²⁸ Link this question to technical area of national legislation, policy and finance.
5. Do national emergency preparedness and response plans include sections related to border health/PoEs? If so, have the PoE public health emergency contingency plans been developed in alignment with the relevant national plans?
6. Has the country conducted public health assessments of some or all of its non-designated PoEs to determine which public health capacities are needed at each? These public health capacities may vary depending on the type of PoE, its location, the volume of travellers coming through, available resources, known public health risks among the populations that travel through the PoE, etc.

Technical questions

PoE1. Core capacity requirements at all times for PoEs

1. Do the designated PoEs have access¹²⁹ to appropriate medical services, including diagnostic facilities for the prompt assessment and care of sick travellers, with adequate staff, equipment and premises (refer to IHR (2005), Annex 1B, 1a)?
2. Do these PoEs have reliable access to equipment and personnel for the transport of sick travellers to an appropriate medical facility?
3. Do designated PoE have written multisectoral procedures for detecting, notifying and responding to ill travellers and PoE workers?
4. Do these PoEs carry out inspection programmes to ensure safe environment at PoEs facilities?
5. Is there evidence of control of vectors and reservoirs in and near PoEs (IHR (2005), Annex 1b, Art. 1e)? Are there specific programmes for this?
6. Do designated PoEs have capacities to apply recommended measures to disinsect, derat, disinfect, decontaminate or otherwise treat baggage, cargo, containers, conveyances, goods or postal parcels, including when appropriate, at locations specially designated and equipped for this purpose?
7. Does the country have trained personnel for the inspection of conveyances available at designated PoEs (IHR (2005), Annex 1b, Art. 1c)? If not, is there a mechanism to bring them from outside?
8. Are the designated PoEs integrated into the national surveillance system?
9. Has the country evaluated the effectiveness of these core capacities at PoEs, including communication and coordination procedures between designated PoEs and referral health

care facilities, via an exercise (tabletop, drills, functional, etc.) or during a real-life event, within the past two years? If yes, is it shared with relevant stakeholders and updated regularly?

PoE2. Public health response at PoEs

1. Has the country integrated activities concerning PoEs (such as for early detection, assessment, notification, report of events) into national emergency response plans?
2. Is the public health emergency contingency plan of each designated point of entry integrated with the overall PoE emergency contingency plan?
 - a. Does each PoE's public health emergency contingency plan involve all relevant sectors and services at the point of entry (such as immigration, transportation, security, media)?
 - b. Are all PoE public health emergency contingency plans disseminated to all relevant stakeholders, including national level authorities?
 - c. Is it developed and disseminated to all stakeholders?
3. Do the designated PoEs have capacities to apply recommended health measures related to travellers at PoEs (such as a system in place for safe referral and transfer of sick travellers to appropriate medical facilities, with MoUs, SOPs, trained staff, equipment and regular exchange of information between PoEs, health authorities and facilities for all designated PoEs)?
4. Have the designated PoE's public health emergency response plans been tested—either via an exercise (tabletop, drills, functional, etc.), or during a real-life event—within the past two years? If yes, are the results shared with relevant stakeholders and updated regularly?

PoE3. Risk-based approach to international travel-related measures

1. Does the country have a national multisectoral process with mechanisms in place, involving all relevant sectors (i.e., health, transportation, migration, customs), to make policy decisions on international travel-related measures to respond to public health events (i.e., exit/entry screening, contact tracing, testing, quarantine)?
2. Does the country conduct a risk assessment on a regular basis to ensure that such decisions on international travel-related measures are commensurate with the public health risk?
 - a. Are there systems and staff in place to collect, compile, manage, analyse, interpret, and act on data related to travellers or population mobility at national, intermediate, local and/or PoE levels to identify areas of increased risk for spread of communicable disease?
 - b. Is information gathered by PoE staff about international traffic associated with public health events detected at PoE, at local health care facilities, through CBS or other mechanisms?
3. In the context of land borders, is information about population mobility gathered, and are there agreements and/or operating procedures developed with one or more neighbouring countries to formalize cross-border information sharing and communication expectations?
4. Are there specific mechanisms and tools, such as guidelines and SOPs, developed for the implementation of international travel-related measures?
5. Does the national multisectoral process consider the application of measures both at national, intermediate and local levels?

6. Has the country evaluated the effectiveness of the international travel-related measures implemented to respond to public health events? If yes, is it shared with relevant stakeholders and updated regularly?

Documentation or evidence for level of capability:

- list of all PoEs in the country, including those designated under the IHR (2005);
- available SOP for detecting, notifying and responding to ill travellers and PoE workers at designated PoE, including procedures developed for PoE workers, health care facilities and local health departments;
- available emergency contingency plans for each designated PoE;
- documented, regularly updated and tested national and point of entry-level guidelines, SOPs, budgets, and staffing plans to reflect all relevant technical and operational guidance tools for PoEs in place and disseminated to all relevant sectors including for:
 - detection, reporting and response to events related to travel and transport;
 - public health measures to be applied at PoEs that may be recommended by the WHO (such as exit/entry screening, isolation, quarantine, contact tracing); and
 - application of other public health measures that could affect international travel and transport, including border closures, quarantine and/or testing requirements, etc.
- documentation available for all relevant technical and operational guidance for PoEs – Annex 1B, 1e “to provide as far as practicable programme and trained personnel for the control of vectors and reservoirs in and near points of entry”;
- documentation available on, regularly updated and tested national guidelines and SOPs to reflect all relevant technical and operational guidance tools for PoEs in place and the same disseminated to all relevant sectors including application of recommended measures to disinsect, de-rat, disinfect, decontaminate or otherwise treat baggage, cargo, containers, conveyances, goods or postal parcels including, when appropriate, at locations specially designated and equipped for this purpose, as defined by IHR (2005), Annex 1B, Part 2.
- Documentation on
 - systematic collection of data on public health events occurring at PoEs using standardized tools;
 - analysis and dissemination of data on public health events occurring at PoEs;
 - updated list of priority conditions for notification;
 - baseline data trends;
 - thresholds for alert and timely action (i.e., per national standards), reporting (using standard reporting formats and tools), and providing timely and regular feedback on surveillance data and trends to relevant stakeholders using standardized feedback formats (such as epi bulletins, electronic summaries, newsletter, surveillance reports).
- Documentation of regular receipt of PoEs findings by national surveillance unit is available.

References:

1. IHR (2005), Annex 1B, "Core Capacity Requirements for Designated Airports, Ports and Ground Crossings".
2. Points of entry checklist in the "Assessment tool for core capacity requirements at designated airports, ports and ground crossings". WHO/HSE/IHR/LYO/2009.9 (<https://www.who.int/publications/i/item/WHO-HSE-IHR-LYO-2009-9>, accessed 22 March 2022).
3. Coordinated public health surveillance between points of entry and national health surveillance systems: advising principles. Geneva: World Health Organization; 2014 (<https://apps.who.int/iris/handle/10665/144805>, accessed 22 March 2022).

CE. CHEMICAL EVENTS^{130,131}

Target: States Parties with surveillance and capacity for chemical risks or events. This requires effective communication and collaboration among the sectors responsible for chemical safety, including health, occupational health, emergencies, environment, transportation and safe disposal, agriculture/veterinary, as well as industries.

As measured by: (1) Mechanisms established and functioning for detecting and responding to chemical events or emergencies. (2) Existence of an enabling environment, including national policies or plans or legislation in place for management of chemical events.

Desired impact: Timely detection of and effective response to potential chemical risks and/or events in collaboration with other sectors responsible for chemical safety, industries, transportation and safe disposal.

Level	CE1. Mechanisms established and functioning for detecting ¹³² and responding to chemical events or emergencies	Choose one level
Level 1	No mechanism in place	
Level 2	Guidelines or manuals on surveillance, assessment and management of chemical events, intoxication and poisoning are available	
Level 3	Surveillance is in place for chemical events, intoxication and poisonings with laboratory capacity or access to laboratory capacity to confirm priority chemical events	
Level 4	Timely and systematic information exchange between appropriate chemical units ¹³³ , surveillance units and other relevant sectors about acute chemical events and potential chemical risks and their response	
Level 5	Adequately resourced poison centre(s) ¹³⁴ are in place and the country has a demonstrated ability to respond to chemical emergencies at national, intermediate and primary public health levels ¹³⁵	

¹³⁰ While the capacities for this technical area should be available countrywide, the infrastructure does not need to be present in all geographical areas.

¹³¹ Indicators refer to detection of and response to chemical events and enabling environment for management of chemical events in place with appropriate legislation, laws or policy and with involvement of multiple sectors.

¹³² Detection capacity also includes not only surveillance but also the laboratory capacity required for the verification of any events.

¹³³ Such as chemical surveillance, environmental monitoring and chemical incident reporting.

¹³⁴ The poisons centre should be sufficiently staffed and resourced to provide a robust and reliable 24/7 service. The population should well use the poisons centre it serves (check number of calls per day). Refer to Guidelines for poisons control. Geneva: World Health Organization; 1997 (http://apps.who.int/iris/bitstream/10665/41966/1/9241544872_eng.pdf, accessed 16 March 2022).

¹³⁵ This includes setting minimum requirements for: local emergency planning and response activities (i.e., arrangements for scaling up capabilities of local emergency response, national support mechanisms, infrastructure and alerting mechanisms); inspection of hazardous sites and assessment of emergency plans; and operators to comply and liaison with local governments (see also: WHO manual: The public health management of chemical incidents. Geneva: World Health Organization; 2009 (<https://www.who.int/publications/i/item/9789241598149>, accessed 22 March 2022)).

Score	Indicators: Chemical events	
	CE2. Enabling environment in place for management of chemical events	Choose one level
Level 1	National policies, plans or legislation for chemical event surveillance, alert ¹³⁶ and response do not exist	
Level 2	National policies, plans or legislation for chemical event surveillance, alert and response exist	
Level 3	A chemical event response plan is in place that defines roles and responsibilities of relevant agencies and considers all major hazard sites and facilities	
Level 4	Functional mechanisms for multisectoral coordination and collaboration to manage chemical events are in place including involvement in international chemical/toxicological networks	
Level 5	A chemical event response plan has been tested through occurrence of a real event or through SimEx and is updated as needed	

Contextual questions

- Has a national chemicals profile or other assessment of chemical management been developed/updated in the past five years? If applicable, describe outcome/provide report.
- Have chemical risks and health impacts (morbidity and mortality) been assessed for priority chemicals in the past five years?
- Have there been any major chemical incidents in the past five years?
- Are any international chemical conventions/agreements ratified/implemented?
 - Is the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals in International Trade ratified?
 - Is the Stockholm Convention on Persistent Organic Pollutants ratified?
 - Is the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal ratified?
 - Is the Minamata Convention on Mercury ratified?
 - Is the United Nations Economic Commission for Europe Convention on the Transboundary Effects of Industrial Accidents ratified?
 - Is the International Labour Organization Convention 174 on Prevention of Major Industrial Accidents ratified?
 - Is the International Labour Organization Convention 170 on Safety in the Use of Chemicals at Work ratified?
- Is the country working towards achieving sustainable development goals 3.9 and 12.4 (see also Strategic Approach to International Chemicals Management goal)?^{137,138}

¹³⁶ Elements of alert include SOPs for coverage, criteria of when and how to alert, duty rosters, etc.

¹³⁷ In adopting the 2030 Agenda for Sustainable Development, governments recognized the continued importance of sound management of chemicals for the protection of human health, particularly in target 3.9, which is to substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination by 2030, as well as target 12.4, which calls for sound management of chemicals and all wastes by 2020 to minimize adverse impacts on human health and the environment.

¹³⁸ The Strategic Approach to International Chemicals Management goal is that chemicals will be produced and used in ways that minimize significant adverse impacts on human health and the environment.

Technical questions

CE1. Mechanisms established and functioning for detecting and responding to chemical events or emergencies

1. Are guidelines or manuals on the surveillance, assessment and management of chemical events, intoxication and poisoning available?
 - a. Are these implemented?
 - b. Are these updated after the events or follow-up exercises, or updated regularly?
2. Is there chemical incidents surveillance?
 - a. Is there an authority/institute/agency with primary responsibility for chemicals management and surveillance/monitoring of chemical events?
 - b. Is there an efficient information flow for surveillance/monitoring of chemical events?
 - c. Is there surveillance of sentinel health events that may signal a hazardous chemical exposure?
 - d. Is there environmental monitoring (water, air, soil, sediment) with regard to chemical hazards?
 - e. Is there monitoring of consumer products (foodstuffs and goods) with regard to chemical hazards?
3. Are there procedures for health risk assessment in chemicals surveillance/monitoring to inform a chemical event response?
4. Is laboratory capacity available for systematic analysis?
5. Are current human resources sufficient to meet the needs for managing chemical events?
6. Are current financial resources sufficient to meet the needs for chemical safety?
7. Are reports of investigation of chemical events produced and disseminated?
8. Is there regular (i.e., weekly, monthly or yearly) feedback of data and response activities in chemicals surveillance/monitoring?
9. Is there an inventory of reference health care facilities for the diagnoses and treatment of chemical poisoning cases?
10. Are there protocols/guidelines for case management with regard to chemical hazards?
11. Are there poison centre(s)? How do they function and fit into the health care system?

CE2. Enabling environment in place for management of chemical events

1. Is there a strategic plan to strengthen the assessment and management of chemicals (e.g. a national chemicals profile)? Is it up to date and implemented?
2. Does chemicals legislation provide comprehensive coverage? Some areas that may be covered by legislation not specific for chemicals should be considered, such as:
 - a. hazardous chemical registration,
 - b. hazardous sites registration,
 - c. control of hazardous sites (through safety reports and safety management systems),

- d. onsite emergency plans,
 - e. off-site emergency plans,
 - f. siting and land use planning,
 - g. control of procedures and sites for disposal of hazardous waste,
 - h. control of contaminated land, water (drinking and other), crops, foodstuffs,
 - i. national and international transport/trade of dangerous goods or substances,
 - j. hazardous substances registration,
 - k. availability of labelling and accompanying safety information for hazardous substances,
 - l. inspection/monitoring and enforcement,
 - m. public communication,
 - n. incident documentation and reporting,
 - o. incident investigation,
 - p. epidemiological and medical follow-up,
 - q. occupational health.
3. Is there a national coordinating body/committee with regard to the assessment and management of chemicals and chemical events?
 4. Is there a public health plan for chemical incidents/emergencies?
 5. Does a public health plan for chemical incidents/emergencies consider the range of functions required in a crisis? Describe, if applicable. Consider the availability of resources and SOPs and the following aspects:
 - a. roles and responsibilities,
 - b. public communication,
 - c. referral, transport and treatment of large numbers of affected individuals,
 - d. stockpiling of equipment and medication,
 - e. follow-up of patients,
 - f. decontamination of people, premises and environment,
 - g. regular evaluation/revision of plan,
 - h. restrictions, evacuation,
 - i. emergency funds,
 - j. exercises organized on a regular basis to test and revise the plan.
 6. Are there multisectoral/interdisciplinary coordination mechanisms with regard to chemical management?

If applicable, describe mechanisms and indicate shortcomings. Coordination mechanisms could consider:

 - a. health,
 - b. environment,
 - c. agriculture,
 - d. National IHR Focal Point,

- e. all public health levels (local, intermediate and national),
 - f. emergency preparedness,
 - g. emergency services (fire, police, ambulance, medical responders),
 - h. consumer safety,
 - i. administrative/political authorities at all levels (local, intermediate, national),
 - j. hazardous sites,
 - k. meteorological services,
 - l. PoEs (ports, airports, ground crossings), in particular those designated under the IHR
 - m. transport,
 - n. private sector/industry,
 - o. poison centre(s),
 - p. reference laboratory(ies) with regard to chemical safety,
 - q. reference health care facilities with regard to chemical emergencies.
7. In the event of a public health emergency of chemical origin, could a budget be mobilized to meet additional demands?
 8. Is there an audit/evaluation system for exercises/responses?
 9. Is there involvement in international chemical/toxicological networks (e.g., INTOX)?
 10. Is there a chemical database or databank available at all times (e.g., INCHEM)?

RE. RADIATION EMERGENCIES¹³⁹

Target: States Parties should have surveillance and response capacity for radiological emergencies and nuclear accidents. This requires effective coordination among all sectors involved in radiation emergencies preparedness and response.

As measured by: (1) Mechanisms established and functioning for detecting and responding to radiological emergencies. (2) Existence of an enabling environment, including national policies or plans or legislation in place for the management of radiological emergencies.

Desired impact: Timely detection and effective response to potential radiological emergencies and nuclear accidents in a cross-sectoral coordinated manner.

Level	RE1. Mechanisms established and functioning for detecting ¹⁴⁰ and responding to radiological and nuclear emergencies	Choose one level
Level 1	National policies, strategies or plans for the detection, assessment and response to radiation emergencies are not established	
Level 2	National policies, strategies or plans for the detection, assessment, and response to radiation emergencies are established and radiation monitoring mechanisms exist for radiation emergencies that may constitute a PHEIC	
Level 3	Technical guidelines or SOPs are developed, evaluated and updated for the management of radiation emergencies (including risk assessment, reporting, event confirmation and notification, and investigation)	
Level 4	Systematic information exchange between competent radiological authorities and human health surveillance units about urgent radiological events and potential risks that may constitute a PHEIC is ensured	
Level 5	Mechanism is in place to access health facilities with capacity to manage patients of radiation emergencies	

Level	RE2. Enabling environment in place for management of radiological and nuclear emergencies	Choose one level
Level 1	No coordination and communication mechanism are organized between national authorities responsible for radiological and nuclear events with health ministry and/or National IHR Focal Point	
Level 2	National authorities responsible for radiological and nuclear events have a designated focal point for coordination and communication with the health ministry and/or National IHR Focal Point	
Level 3	A radiation emergency response plan exists (could be part of the national emergency response plan) and national policies, strategies or plans for national and international transport of radioactive materials, samples and waste management including those from hospitals and medical services ¹⁴¹ are established	

¹³⁹ This indicator refers to detection and response to radiological and nuclear emergencies and an enabling environment for the management of radiation events in place with appropriate legislation or policy and with the involvement of relevant sectors (such as environment, transport, trade, tourism, customs, law enforcement, defence, etc.).

¹⁴⁰ Detection capacity includes not only surveillance but also the laboratory capacity required for the verification of any events in collaboration with laboratory networks outside and inside the country. Mechanisms for surveillance include policies, guidelines and systems for reporting actual or potential radiation emergencies to a central authority, and also guidance for assessing and acting on these events. The resources needed include infrastructure for monitoring, identification and assessment of radiation exposure.

¹⁴¹ This refers to facilities and case management of individuals with radiation injuries.

Level	RE2. Enabling environment in place for management of radiological and nuclear emergencies	Choose one level
Level 4	Functional coordination ¹⁴² and communication mechanisms ¹⁴³ exist between relevant national competent authorities responsible for nuclear regulatory control/safety and relevant sectors ¹⁴⁴	
Level 5	Radiation emergency response drills and other exercises carried out regularly, including the requesting of international assistance (as needed) and international notification ¹⁴⁵	

Contextual questions

1. Have there been radiation safety assessments in the past five years (such as emergency preparedness review by IAEA)? If applicable, describe the outcome and share the report.
2. Have there been baseline public health assessments with regard to radiation safety in the past five years, for example considering morbidity and mortality?
3. Have there been any major radiation emergencies in the past that may have contributed to the experience and preparedness of the country?
4. Is the country a signatory to the Early Notification and Assistance in Case of a Nuclear Emergency (1986) conventions?

Technical questions

RE1. Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies

1. Are there national policies, strategies or plans available for the detection, assessment, response and recovery after radiation emergencies?
 - a. Are these implemented, and if so, how?
 - b. Are these updated after actual events or exercises (or updated regularly)?
2. Is there an authority/institute/agency with primary responsibility for radiation and surveillance/monitoring?
3. Is there monitoring of consumer products (e.g., foodstuffs and goods) with regard to radioactive contamination?
4. Are there procedures for risk assessment in radiological surveillance/monitoring, to trigger/mount a response of suitable composition and magnitude?

¹⁴² Note cross-references with technical areas of "National legislation, policy and financing" and "IHR coordination, communication and advocacy", and the attributes for this component should be also fully addressed under those core capacities.

¹⁴³ Information sharing, meetings, SOPs developed for collaborative response, etc.

¹⁴⁴ Coordination for risk assessments, risk communications, planning, exercising, monitoring and including coordination during urgent radiological events and potential risks that may constitute a PHEIC.

¹⁴⁵ Established arrangements and mechanisms in place to access these capacities in relevant collaborating institutions within the country or in other countries.

5. Is there laboratory capacity in the country or access to laboratory services abroad for monitoring and assessment of radioactive contamination of the environment in case of a radiation emergency?
6. Is there laboratory capacity in the country or access to laboratory services abroad for monitoring and assessment of internal contamination and radiation exposure of humans in case of a radiation emergency?
7. Are training programmes available for emergency responders in the country or is their access to training abroad?
8. Are current human resources sufficient to meet the needs of radiation protection and safety?
9. Are current financial resources sufficient to meet the needs of radiation protection and safety?
10. Is there an inventory of reference/designated health care facilities for radiation emergencies?
11. Are there protocols/guidelines for case management of persons over-exposed to ionizing radiation?
12. Is there a national stockpile of pharmaceutical agents that can be used as countermeasures in radiation emergencies (such as diethylene triamine penta-acetic acid, Prussian blue, potassium iodide, cytokines)?

RE2. Enabling environment in place for management of radiological and nuclear emergencies

1. Is there a policy or strategic plan for ensuring safe use of radiation in the country? Is it up to date? How is it implemented?
2. Is there a national coordinating body/committee with regard to radiological and nuclear emergencies?
3. Is there an emergency response plan for radiological and nuclear emergencies?
4. Does the emergency response plan consider the range of functions required in a crisis? Describe, if applicable. Does it consider the availability of resources and SOPs? The plan should consider the following aspects:
 - a. roles and responsibilities,
 - b. public communication,
 - c. referral, transport and treatment of large numbers of affected individuals,
 - d. stockpiling of equipment and medication,
 - e. decontamination of people, premises and environment,
 - f. registration and follow-up of over-exposed persons,
 - g. restrictions, evacuation,
 - h. emergency funds,
 - i. exercises organized on a regular basis to evaluate and revise the plan.

5. Are there multisectoral/interdisciplinary coordination mechanisms with regard to radiation emergency preparedness and response management? If applicable, describe mechanisms and indicate shortcomings. Coordination mechanisms could involve:
 - a. Health sector
 - i. National IHR Focal Point
 - ii. Hospitals and health care facilities (clinics, laboratories, nursing homes)
 - iii. All levels of public health infrastructure (local, intermediate, national)
 - iv. Food and drinking-water safety services
 - v. Laboratory(ies) for individual monitoring and assessment of radiation exposure in humans
 - vi. Reference health care facilities capable of clinical management of severe radiation injuries and internal contamination.
 - b. Environmental protection
 - i. National surveillance services for radiological monitoring of the environment
 - c. Nuclear regulatory and radiation safety authorities
 - i. Operators of nuclear installations (if any)
 - d. Emergency services (fire, police, ambulance, medical responders, etc.)
 - e. Consumer safety, including food and drinking-water safety
 - f. Administrative/political authorities at all levels (local, intermediate, national)
 - g. Hazardous sites management
 - h. Meteorological services
 - i. Points of entry (ports, airports, ground crossings), in particular those designated under the IHR
 - j. Transport
 - k. Private sector/industry.
6. In the event of a radiation emergency, could a budget be mobilized to meet additional demands?
7. Is there an audit/evaluation system for exercises/responses?
8. Are their radiation emergency response drills carried out regularly?
9. Are plans for national and international transport of radioactive materials, and waste management including those from hospitals and medical services established?
10. Are there links established with global expert networks, such as WHO's Radiation Emergency Medical Preparedness and Assistance Network (REMPAN), WHO's global biodosimetry network of laboratories for radiation emergencies (BioDoseNet), or IAEA Response and Assistance Network (RANET)?

References:

- Preparedness and response for a nuclear or radiological emergency. Jointly sponsored by the FAO, IAEA, ICAO, ILO, IMO, INTERPOL, OECD/NEA, PAHO, CTBTO, UNEP, OCHA, WHO, WMO. General Safety Requirements Part 7. Vienna: International Atomic Energy Agency; 2015 (http://www-pub.iaea.org/MTCD/Publications/PDF/P_1708_web.pdf, accessed 16 March 2022).
- IAEA safety glossary. Terminology used in nuclear safety and radiation protection 2007 edition. Vienna: International Atomic Energy Agency; 2009 (http://www-pub.iaea.org/MTCD/publications/PDF/Pub1290_web.pdf, accessed 16 March 2022).

ANNEX 1

GLOSSARY

These terms and definitions have been provided for use within the context of this tool and may differ from those used in other documents. The purpose is to clarify key terms that are relevant in the context of IHR and for public health threats covered by the Regulations.

Biosafety. Laboratory biosafety describes the containment principles, technologies and practices that are implemented to prevent unintentional exposure to pathogens and toxins, or their accidental release.

Biosecurity. Laboratory biosecurity describes the protection, control and accountability for valuable biological materials within laboratories as well as information related to these materials and dual-use research, in order to prevent their unauthorized access, loss, theft, misuse, diversion or intentional release.

Case. A person who has the particular disease, health disorder or condition that meets the case definitions for surveillance and outbreak investigation purposes. The definition of a case for surveillance and outbreak investigation purpose is not necessarily the same as the ordinary clinical definition (adapted from Last JM, Spasoff RA, Harris, editors. A dictionary of epidemiology, fourth edition. International Epidemiological Association, Inc. New York: Oxford University Press; 2001).

Case definition. A set of diagnostic criteria that must be fulfilled for an individual to be regarded as a case of a particular disease for surveillance and outbreak investigation purposes. Case definitions can be based on clinical criteria, laboratory criteria or a combination of the two with the elements of time, place and person. (In the IHR, case definitions are published on the [WHO website](https://www.who.int/publications/m/item/case-definitions-for-the-four-diseases-requiring-notification-to-who-in-all-circumstances-under-the-ihr-(2005)) for the four diseases for which all cases must be notified by States Parties to WHO, regardless of circumstances, under the IHR as provided in Annex 2.) ([https://www.who.int/publications/m/item/case-definitions-for-the-four-diseases-requiring-notification-to-who-in-all-circumstances-under-the-ihr-\(2005\)](https://www.who.int/publications/m/item/case-definitions-for-the-four-diseases-requiring-notification-to-who-in-all-circumstances-under-the-ihr-(2005))).

Chemical event. A manifestation of a disease or an occurrence of an event, which creates a potential for a disease as a result of exposure to or contamination by a chemical agent.

Cluster. An aggregation of relatively uncommon events or diseases in space and/or time in amounts that are believed or perceived to be greater than that expected by chance (adapted from Last JM, Spasoff RA, Harris, editors. A dictionary of epidemiology, fourth edition. International Epidemiological Association, Inc. New York: Oxford University Press; 2001).

Communicable disease (infectious disease). An illness due to a specific infectious agent or its toxic products that arises through transmission of that agent or its products from an infected person, animal or reservoir to a susceptible host, either directly or indirectly through an intermediate plant or animal host, vector or the inanimate environment (adapted from Last JM, Spasoff RA, Harris, editors. A dictionary of epidemiology, fourth edition. International Epidemiological Association, Inc. New York: Oxford University Press; 2001).

Community surveillance. The starting point for event notification at the community level, generally

done by a community worker; it can be active (looking for cases) or passive (reporting cases). It may be particularly useful during an outbreak and where syndromic case definitions can be used (the identification of community cases of Ebola virus infection by community workers was an example of active community surveillance).

Competent authority. An authority responsible for the implementation and application of health measures under the IHR.

Contamination. The presence of an infectious or toxic agent or matter on the body surface of a human or animal, in or on a product prepared for consumption or on other inanimate objects, including conveyances that may constitute a public health risk.

Dangerous pathogens and toxins. These are biological agents and toxins that have the potential to pose a severe threat to both human and animal health. While some select agents are normally found in the environment and do not cause human disease, many of them – if manipulated or released in large quantities – can cause serious health threats. The informal Australia Group provides a list of human and animal pathogens and toxins for export control (https://www.dfat.gov.au/publications/minisite/theaustraliagroupnet/site/en/human_animal_pathogens.html).

Decontamination. A procedure whereby health measures are taken to eliminate an infectious or toxic agent or matter on the body surface of a human or animal, in or on a product prepared for consumption, or on other inanimate objects, including conveyances that may constitute a public health risk.

Designated laboratories. These are laboratories designated to perform specific laboratory services by national, WHO or other authorities because of their proven capacities and capabilities, such as for AMR testing.

Designated PoEs. These refer to a port, airport and potentially a ground crossing that is designated by a State Party to strengthen, develop and maintain the capacities as per main IHR articles 19, 20 and 21, and as described in Annex 1 of the IHR:

- The capacities at all times concerning access to medical services for prompt assessment and care of ill travellers, a safe environment for travellers (e.g., water, food, waste), personnel for inspection and vector control functions; and
- The capacities to respond specifically to events that may constitute a PHEIC.

Disease. An illness or medical condition, irrespective of origin or source, that presents or could present significant harm to humans.

Disinsection. The procedure whereby health measures are taken to control or kill insect vectors of human diseases present in baggage, cargo, containers, conveyances, goods and postal parcels.

Documented procedures. Agreed and approved strategies for operation, SOP, roles and responsibilities, agreements, terms of reference, chains of command, reporting mechanisms, among others.

Early warning system. A specific procedure in disease surveillance to detect any abnormal occurrence, or departure from the usual or normally observed frequency of phenomena (such as one case of Ebola fever), as early as possible. An early warning system is only useful if it is

linked to mechanisms for early response (adapted from Last JM, Spasoff RA, Harris, editors. A dictionary of epidemiology, fourth edition. International Epidemiological Association, Inc. New York: Oxford University Press; 2001).

Epidemic. The occurrence in a community or region of cases of an illness, specific health-related behaviours, or other health-related events clearly in excess of normal expectancy. The community or region and the period in which the cases occur are specified precisely. The number of cases indicating the presence of an epidemic varies according to the agent, size and type of population exposed, previous experience or lack of exposure to the disease, and time and place of occurrence (adapted from Last JM, Spasoff RA, Harris, editors. A dictionary of epidemiology, fourth edition. International Epidemiological Association, Inc. New York: Oxford University Press; 2001).

Event. A manifestation of disease or an occurrence that creates a potential for disease.

EBS. The organized and rapid capture of information about events that are a potential risk to public health. This information can be rumours and other ad hoc reports transmitted through formal channels (i.e., established routine reporting systems) and informal channels (i.e., the media, health workers and reports from nongovernmental organizations), including events related to the occurrence of disease in humans and events related to potential human exposure.

Feedback. The regular process of sending analyses and reports about surveillance data back through all levels of the surveillance system so that all participants can be informed of trends and performance.

FETP

- FETP Basic Level Training is for local health staff and consists of limited classroom hours interspersed throughout as a three-to-five-months on-the-job field assignment to build capacity in conducting timely outbreak detection, public health response and public health surveillance.
- FETP Intermediate Level Training is for district/region/state-level epidemiologists and consists of limited classroom hours interspersed throughout as a six-to-nine-months on-the-job mentored field assignment to build capacity in conducting outbreak investigations, planned epidemiologic studies, and public health surveillance analyses and evaluations.
- FETP Advanced Level Training is for advanced epidemiologists and consists of limited classroom hours interspersed throughout the 24 months of mentored field assignments to build capacity in outbreak investigations, planned epidemiologic studies, public health surveillance analyses and evaluations, scientific communication, and evidence-based decision-making for development of effective public health programming with a national focus. Animal health professionals can be engaged in these FETP trainings.

Functional exercise. A fully simulated interactive exercise that tests the capability of an organization to respond to a simulated event. The exercise tests multiple functions of the organization's operational plan. It is a coordinated response to a situation in a time pressured realistic situation as described in WHO Simulation Exercise Manual 5. A functional exercise focuses on the coordination, integration and interaction of an organization's policies, procedures, roles and responsibilities before, during or after the simulated event WHO Simulation Exercise Manual. HO-WHE-CPI-2017.10 (<http://apps.who.int/iris/bitstream/handle/10665/254741/WHOWHE-CPI-2017.10-eng.pdf>).

Ground crossing. A point of land entry into a State Party, including those utilized by road vehicles and trains.

Gender gaps refers to differences between men, women and people of diverse gender identities in terms of their levels of participation, access, rights, remuneration or benefits. These gaps may arise because of biological, socioeconomic or sociocultural reasons.

Gender systematic assessment refers to evidence-based identification of a gender gap to understand the causes of that gender gap (sometimes referred to as gender analysis), without knowing the causes of a gender inequality it is not possible to develop an action plan to address it. Assessments can be done using secondary analysis of available data and research where possible, as well as with novel research.

For further guidance see the following document; WHO (2011) Gender mainstreaming for health managers: a practical approach. participant's notes (<https://www.who.int/publications/item/9789241501057>, accessed 18 March 2022). Also: Using multidimensional poverty and vulnerability indices to inform equitable policies and interventions in health emergencies: research brief. Geneva: World Health Organization; 2021 (<https://www.who.int/publications/item/9789240031852>, accessed 18 February 2022).

Gender action plan Refers to a planning document that includes: (i) Activity(ies) that will be undertaken to address identified and assessed gender gap(s) (ii) Indicators to assess progress in closing each gender gap; (iii) Data and measures required to track shifts in each indicator; (iv) Training and (human and institutional) capacity requirements and how these will be met; (v) An estimated line-item budget; (vi) A timeline.

Gender high priority gaps refers to sex and gender gaps that are assessed to (i) inhibit implementation effectiveness, (ii) potentially affect a large proportion of the population of the disadvantaged sex (women and girls, or men and boys) and (iii) act as a constraint to effective and full preparedness and response that the whole population can access. Based on the gender analysis conducted, each country will determine which elements of gender inequalities are high priority, with consideration given to the differences across countries in sociocultural contexts and gender norms.

Hazard. The inherent capability of an agent or situation to have an adverse effect; a factor or exposure that may adversely affect health (similar concept to risk factor).

Health care worker. Any employee in a health care facility who has close contact with patients, patient care areas or patient care items; also referred to as "health care personnel".

Health event. Any event relating to the health of an individual, such as the occurrence of a case of a specific disease or syndrome, the administration of a vaccine or an admission to hospital.

Health measure. A procedure applied to prevent the spread of disease or contamination; it does not include law enforcement or security measures.

Incidence. The number of instances of illness commencing, or of persons falling ill, during a given period in a specified population (Prevalence and incidence. WHO Bulletin 1966;35:783–84).

IBS. The routine reporting of cases of disease, including from notifiable diseases surveillance, sentinel surveillance, laboratory-based surveillance. This routine reporting is commonly health care facility based with reporting done on a weekly or monthly basis.

Infection. The entry and development or multiplication of an infectious agent in the body of humans and animals that may constitute a public health risk.

Infection control. Measures practiced by health care personnel in health care facilities to decrease transmission and acquisition of infectious agents. These include proper hand hygiene, scrupulous work practices, and the use of PPE (such as masks, respirators, gloves, gowns, eye protection). Infection control measures are based on how an infectious agent is transmitted and include standard, contact, droplet and airborne precautions.

Infectious disease. See Communicable disease.

IHR. This is a legally binding instrument of international law, which has its origin in the International Sanitary Conventions of 1851, concluded in response to increasing concern about the links between international trade and spread of diseases (cross-border health risks).

Isolation. Separation of sick or contaminated persons or affected baggage, containers, conveyances, goods or postal parcels from others in such a manner as to prevent the spread of infection or contamination.

Legislation. The range of legal, administrative or other governmental instruments that may be available for States Parties to implement the IHR. This includes legally binding instruments, such as state constitutions, laws, acts, decrees, orders, regulations and ordinances; legally non-binding instruments, such as guidelines, standards, operating rules, administrative procedures or rules; and other types of instruments, such as protocols, resolutions and intersectoral or inter-ministerial agreements. This encompasses legislation in all sectors, such as health, agriculture, transportation, environment, ports and airports, and at all applicable governmental levels (national, intermediate, primary and other).

Marginalized and vulnerable populations: These terms are applied to groups of people who, due to factors usually considered outside their control, do not have the same opportunities as other, more fortunate groups in society. Examples might include unemployed people, women and girls, refugees and others who are socially excluded.

Multisectoral. A holistic approach involving the efforts of multiple organizations, institutes and agencies. It encourages interdisciplinary participation, collaboration and coordination of people of concern and resources from these key organizations for promoting health security, to achieve a specific goal.

National legislation. See Legislation.

National IHR Focal Point. The national centre designated by each State Party, which shall be accessible at all times for communications with WHO IHR Contact Points under the IHR.

Notifiable disease. A disease that, by statutory/legal requirements, must be reported to a public health or other competent authority in the pertinent jurisdiction when the diagnosis is made (adapted from Last JM, Spasoff RA, Harris, editors. A dictionary of epidemiology, fourth edition. International Epidemiological Association, Inc. New York: Oxford University Press; 2001).

Notification. The processes by which cases or outbreaks are brought to the knowledge of the health authorities. In the context of the IHR, notification is the official communication of a disease/health event to the WHO by the health administration of the Member State affected by the disease/health event.

Occupational safety. Occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards. The health of workers has several determinants, including risk factors at the workplace leading to cancers, accidents, musculoskeletal diseases, respiratory diseases, hearing loss, circulatory diseases, stress related disorders, communicable diseases and others (<https://www.who.int/health-topics/occupational-health>, accessed 18 March 2022).

Occupational safety and health. The WHO Global Plan of Action on Workers' Health (2008–17) and consistent with the International Labour Organization Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187) aims to strengthen health systems and the design of health care settings for improving health and safety of the health worker, patient safety and quality of patient care, and ultimately support a healthy and sustainable community with links to greening health sector and green jobs initiatives (http://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_145837.pdf).

One Health. Defined by WHO as an approach to designing and implementing programmes, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes. In the context of the WHO technical framework in support to IHR monitoring and evaluation, taking a One Health approach means including, from all relevant sectors, national information, expertise, perspectives and experience necessary to conduct assessments, evaluations and reporting for the implementation of the IHR (<https://extranet.who.int/sph/one-health-operations>, accessed 18 March 2022).

Other governmental instruments. Agreements, protocols and resolutions of any government authority or body.

Outbreak. An epidemic limited to localized increase in the incidence of a disease, such as in a village, town or closed institution (adapted from Last JM, Spasoff RA, Harris, editors. A dictionary of epidemiology, fourth edition. International Epidemiological Association, Inc. New York: Oxford University Press; 2001).

PPE. Specialized clothing and equipment designed to create a barrier against health and safety hazards; examples include goggles, face shields, gloves and respirators.

Point of entry. A passage for international entry or exit of travellers, baggage, cargo, containers, conveyances, goods and postal parcels, and the agencies and areas providing services to them upon entry or exit.

Port. A seaport or a port on an inland body of water where ships on an international voyage arrive or depart.

PHEIC. An extraordinary event (as defined in the IHR) that: (i) constitutes a public health risk to other states through the international spread of disease; and (ii) potentially requires a coordinated international response.

Public health risk. The likelihood of an event that may adversely affect the health of human populations, with an emphasis on whether it may spread internationally or present a serious and direct danger.

Quarantine. The restriction of activities and/or separation from others of suspect persons who are not sick, or of suspect baggage, containers, conveyances or goods in such a manner so as to prevent the possible spread of infection or contamination.

Rapid response team. A group of trained individuals that is ready to respond quickly to an event. The composition and terms of reference are determined by the concerned country.

Readiness. It is the ability to quickly and appropriately respond when required to any emergencies.

Regulations or administrative requirements. All regulations, procedures, rules and standards.

Relevant sectors. Private and public sectors: such as all levels of the health care system (national, intermediate and community/primary public health); NGOs; ministries of agriculture (zoonosis, veterinary laboratory), transport (transport policy, civil aviation, ports and maritime transport), trade and/or industry (food safety and quality control), foreign trade (consumer protection, control of compulsory standard enforcement), communication, defence, treasury or finance (customs), environment, interior, health, tourism; the home office; media; and regulatory bodies.

Risk communication. For public health emergencies includes the range of communication capacities required through the preparedness, response and recovery phases of a serious public health event to encourage informed decision-making, positive behaviour change and the maintenance of trust.

Surveillance. The systematic ongoing collection, collation and analysis of data for public health purposes and the timely dissemination of public health information for assessment and public health response, as necessary.

Syndrome. A symptom complex in which the symptoms and/or signs coexist more frequently than would be expected by chance independently (adapted from Last JM, Spasoff RA, Harris, editors. A dictionary of epidemiology, fourth edition. International Epidemiological Association, Inc. New York: Oxford University Press; 2001).

Table top exercise. A facilitated discussion of an emergency situation, generally in an informal, low-stress environment. It is designed to elicit constructive discussion between participants; to identify and resolve problems; and to refine existing operational plans. This is the only type of SimEx that does not require an existing response plan in place. WHO Simulation Exercise Manual. HO-WHE-CPI-2017.10 (<http://apps.who.int/iris/bitstream/10665/254741/1/WHO-WHE-CPI-2017.10-eng.pdf?ua=1>, accessed 18 March 2022).

Trained staff. Individuals that have educational credentials and/or received specific instruction that is applicable to a task or situation.

Urgent event. A manifestation of a disease or an occurrence that creates a potential for disease that has a serious public health impact and/or is unusual or of unexpected nature, with high potential for spread. Note: the term "urgent" has been used in combination with other terms (such as infectious event, chemical event) in order to simultaneously convey both the nature of

the event and the characteristics that make it "urgent" (i.e. serious public health impact and/or unusual or unexpected nature with high potential for spread).

Vector. An insect or other invertebrate that transmits an infectious agent or parasite from one animal (including humans) or plant to another.

Verification. The provision of information by a State Party to WHO confirming the status of an event within the territory or territories of that State Party.

WHO IHR Contact Point. The unit within WHO that is accessible at all times for communications with the National IHR Focal Point.

Zoonotic diseases (or zoonoses). Any infection or infectious disease that is naturally transmissible between animals and humans (<https://www.who.int/news-room/fact-sheets/detail/zoonoses>, accessed 28 November 2017).

Zoonotic event. A manifestation of a disease in animals that creates a potential for a disease in humans as a result of exposure to the animal source.

ANNEX 2

SUMMARY OF CHANGES BETWEEN JEE TOOL SECOND AND THIRD EDITIONS

List of changes in technical areas and indicators	JEE second edition	JEE third edition
Technical area-name modified and split into two separate technical areas	P1. National legislation, policy and financing	P1. Legal instruments
Indicator – added new indicator on gender	<p>P1.1. The State has assessed, adjusted and aligned its domestic legislation, policies and administrative arrangements in all relevant sectors, to enable compliance with the IHR</p> <p>P1.2. Financing is available for the implementation of IHR capacities</p> <p>P1.3. A financing mechanism and funds are available for timely response to public health emergencies</p>	<p>P1.1. Legal instruments</p> <p>P1.2. Gender equity and equality in health emergencies</p>
Technical area – new split from national legislation, policy and financing		P2. Financing
Indicators		<p>P2.1. Financing for IHR implementation</p> <p>P2.2. Financing for public health emergency response</p>
Technical area-name slightly modified	P2. IHR coordination, communication and advocacy	P3. IHR coordination, National IHR Focal Point functions and advocacy
Indicators	<p>P2.1. A functional mechanism established for the coordination and integration of relevant sectors in the implementation of IHR</p>	<p>P3.1. National IHR Focal Point functions</p> <p>P3.2. Multisectoral coordination mechanisms</p> <p>P3.3. Strategic planning for IHR, preparedness or health security</p>
Technical area	P3. AMR	P4. AMR
Indicators – split indicator on optimize use of antimicrobials into two; human health and animal and agriculture health	<p>P3.1. Effective multisectoral coordination of AMR</p> <p>P3.2. Surveillance of AMR</p> <p>P3.3. IPC</p> <p>P3.4. Optimize use of antimicrobial medicines in human and animal health and agriculture</p>	<p>P4.1. Multisectoral coordination on AMR</p> <p>P4.2. Surveillance of AMR</p> <p>P4.3. Prevention of MDRO</p> <p>P4.4. Optimal use of antimicrobial medicines in human health</p> <p>P4.5. Optimal use of antimicrobial medicines in animal health and agriculture</p>

List of changes in technical areas and indicators	JEE second edition	JEE third edition
Technical area	P4. Zoonotic diseases	P5. Zoonotic disease
Indicators – added new indicator on sanitary animal production practices	P4.1. Coordinated surveillance systems in place in the animal health and public health sectors for zoonotic diseases/pathogens identified as joint priorities P4.2. Mechanisms for responding to infectious and potential zoonotic diseases established and functional	P5.1. Surveillance of zoonotic diseases P5.2. Response to zoonotic diseases P5.3. Sanitary animal production practices
Technical area	P5. Food safety	P6. Food safety
Indicators	P5.1. Surveillance systems in place for the detection and monitoring of foodborne diseases and food contamination P5.2. Mechanisms are established and functioning for the response and	P6.1. Surveillance of foodborne diseases and contamination P6.2. Response and management of food safety emergencies
Technical area	P6. Biosafety and biosecurity	P7. Biosafety and biosecurity
Indicators	P6.1. Whole-of-government biosafety and biosecurity system in place for all sectors (including human, animal and agriculture facilities) P6.2. Biosafety and biosecurity training and practices in all relevant sectors (including human, animal and agriculture)	P7.1. Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities P7.2. Biosafety and biosecurity training and practices in all relevant sectors (including human, animal and agriculture)
Technical area	P7. Immunization	P8. Immunization
Indicators – added on Mass vaccination for epidemics of VPDs	P7.1. Vaccine coverage (measles) as part of national programme P7.2. National vaccine access and delivery	P8.1. Vaccine coverage (measles) as part of national programme P8.2. National vaccine access and delivery P8.3. Mass vaccination for epidemics of VPDs
Technical area	D1. National laboratory systems	D1. National laboratory systems laboratory
Indicators	D1.1. Laboratory testing for detection of priority disease D1.2. Specimen referral and transport system D1.3. Effective national diagnostic network D1.4. Laboratory quality system	D1.1. Laboratory testing capacity modalities D1.2. Specimen referral and transport system D1.3. Effective national diagnostic network D1.4. Laboratory quality system

List of changes in technical areas and indicators	JEE second edition	JEE third edition
Technical area	D2. Surveillance	D2. Surveillance
Indicators – added new indicator on event verification to align with SPAR, dropped indicator on electronic tool	D2.1. Surveillance systems D2.2. Use of electronic tools D2.3. Analysis of surveillance data	D2.1. Early warning surveillance function D2.2. Event verification and investigation D2.3. Analysis and information sharing
Technical area – dropped	D3. Reporting	
Indicators – moved indicators to P3. IHR coordination, National IHR Focal Point and Advocacy	D3.1. System for efficient reporting to FAO, OIE and WHO D3.2. Reporting network and protocols in country	
Technical area	D4. Human resources	D3. Human resources
Indicators – added new indicator on surge capacity	D4.1 An up to date multisectoral workforce strategy is in place D4.2. Human resources are available to effectively implement IHR D4.3. In-service trainings are available D4.4. FETP or other applied epidemiology training programme is in place	D3.1. Multisectoral workforce strategy D3.2. Human resources for implementation of IHR D3.3. Workforce training D3.4. Workforce surge during a public health event
Technical area – merged with EOC	R1. Emergency preparedness	R1. Health emergency management
Indicators – added three new indicators- emergency readiness assessment, RDI and emergency logistics and supply chain management moved from medical countermeasure	R1.1. Strategic emergency risk assessments conducted, and emergency resources identified and mapped R1.2. National multisectoral multihazard emergency preparedness measures, including emergency response plans are developed, implemented and tested	R1.1. Emergency risk assessment and readiness R1.2. PHEOC R1.3. Management of health emergency response R1.4. Activation and coordination of health personnel in a public health emergency R1.5. Emergency logistic and supply chain management R1.6. Research, development and innovation
Technical area – merged with EP	R2. EOC	
Indicators	R2.1. Emergency response coordination R2.2. EOC capacities, procedures and plans R2.3. Emergency exercise management programme	

List of changes in technical areas and indicators	JEE second edition	JEE third edition
Technical area	R3. Linking public health and security authorities	R2. Linking public health and security authorities
Indicators	R3.1. Public health and security authorities (e.g. law enforcement, border control, customs) linked during a suspect or confirmed biological, chemical or radiological event	R2.1. Public health and security authorities (e.g. law enforcement, border control, customs) are linked during a suspect or confirmed biological, chemical or radiological event
Technical area – dropped	R4. Medical Counter measures	
Indicators – moved to new technical areas	R4.1. System in place for activating and coordinating medical countermeasures during a public health emergency (R1. Health emergencies management) R4.2. System in place for activating and coordinating health personnel during a public health emergency (R1. Health emergencies management) R4.3. Case management procedures implemented for IHR relevant hazards (R3. Health services provision)	
Technical area – was an indicator under AMR now a new technical area		R3. Health services provision
Indicators – aligned with SPAR		R3.1. Case management R3.2. Utilization of health services R3.3. Continuity of essential health devices
Technical area – was an indicator under AMR now a new technical area		R4. IPC
Indicators – has three indicators		R4.1. IPC programmes R4.2. HCAI surveillance R4.3. Safe environment in health facilities

List of changes in technical areas and indicators	JEE second edition	JEE third edition
Technical area	R5. Risk communication	R5. RCCE
Indicators – added new indicator on infodemic management	R5.1 Risk communication systems for unusual/unexpected events and emergencies R5.2. Internal and partner coordination for emergency risk communication R5.3. Public communication for emergencies R5.4. Communication engagement with affected communities R5.5. Addressing perceptions, risky behaviours and misinformation	R5.1. RCCE systems for emergencies R5.2 Risk communication R5.3. Community engagement
Technical area	PoE. Points of entry	PoE. PoEs and border health
Indicators – added new indicator on risk-based approach to international travel-related measures	PoE1. Routine capacities established at PoEs PoE2. Effective public health response at PoEs	PoE1. Core capacity requirements at all times for PoEs (airports, ports and ground crossings) PoE2. Public health response at PoEs PoE3. Risk-based approach to international travel-related measures
Technical area	Chemical events	Chemical events
Indicators	CE1. Mechanisms established and functioning for detecting and responding to chemical events or emergencies CE2. Enabling environment in place for management of chemical event	CE1. Mechanisms established and functioning for detecting and responding to chemical events or emergencies CE2. Enabling environment in place for management of chemical event
Technical area	Radiation emergencies	Radiation emergencies
Indicators	RE1. Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies RE2. Enabling environment in place for management of radiological and nuclear emergencies	RE1. Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies RE2. Enabling environment in place for management of radiological and nuclear emergencies
Total technical areas and indicators	19 technical areas 49 indicators	19 technical areas 56 indicators



**World Health
Organization**

CONTACT DETAILS

World Health Organization
20 Avenue Appia
CH-1211 Geneva 27, Switzerland

E-MAIL

ihrmonitoring@who.int

