

JOINT EXTERNAL EVALUATION TOOL

SECOND EDITION - January 2018

INTERNATIONAL HEALTH REGULATIONS (2005)



World Health
Organization

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ABBREVIATIONS

AMR	Antimicrobial resistance
BTWC	Biological and Toxin Weapons Convention
CLSI	Clinical and Laboratory Standards Institute
CPE	Continuing Professional Education
EBS	Event-based surveillance
EMT	Emergency Medical Team
EOC	Emergency Operations Centre
EQA	External Quality Assessment
EUCAST	European Committee on Antimicrobial Susceptibility Testing
FAO	Food and Agriculture Organization
FETP	Field Epidemiology Training Programme
GAP	Global Action Plan
GHSA	Global Health Security Agenda
GLASS	Global Antimicrobial Resistance Surveillance System
GOARN	Global Outbreak Alert and Response Network
HAI	Healthcare-associated infections
HIV	Human Immunodeficiency Virus
IAEA	International Atomic Energy Agency
IBS	Indicator-based surveillance
IHR	International Health Regulations
INFOSAN	International Food Safety Authorities Network
INTERPOL	International Criminal Police Organization
ISO	International Organization for Standardization
IT	Information Technology
JEE	Joint External Evaluation
MCV	Measles-containing vaccine
MoU	Memorandum of understanding
NAPHS	National Action Plan for Health Security
NCC	National Coordinating Centre
NGO	Non-governmental Organization
NSHSP	National Strategic Health Sector Plan
OIE	World Organisation for Animal Health
OPCW	Organisation for the Prohibition of Chemical Weapons
PCR	Polymerase Chain Reaction
PHEIC	Public Health Emergency of International Concern
PoE	Points of Entry
PVS	Performance of Veterinary Services
QMS	Quality Management System
SAICM	Strategic Approach to International Chemicals Management
SOP	Standard Operating Procedure
VPDs	Vaccine-preventable diseases
WAHIS	World Animal Health Information System
WASH	water, sanitation and hygiene
WHA	World Health Assembly
WHO	World Health Organization

BACKGROUND

THE INTERNATIONAL HEALTH REGULATIONS (2005)

In May 2005, the Fifty-eighth World Health Assembly (WHA) adopted the International Health Regulations (IHR (2005); hereinafter “IHR” or “the Regulations”), which subsequently entered into force on 15 June 2007. All States Parties are required by the IHR to develop certain minimum core public health capacities. IHR capacity requirements are defined as “the capacity to detect, assess, notify and report events” in Article 5; and “the capacity to respond to promptly and effectively to public health risks and public health emergencies of international concern” in Article 13.

IHR (2005) (Article 54 and Resolution WHA61.2) requires State Parties and the WHO Director-General to report annually to the World Health Assembly on the implementation of the Regulations as decided by the Health Assembly. The IHR Core Capacity Monitoring Framework was developed by the Secretariat, with a checklist and indicators to monitor progress in the development of the core capacities. Between 2010 and 2016, 195 State Parties have reported to WHO at least once using IHR monitoring questionnaires; averaging 73% of MS reporting annually.

THE IHR REVIEW COMMITTEE ON SECOND EXTENSIONS

The IHR Review Committee on Second Extensions for establishing national public health capacities and on IHR implementation (WHA68/22 Add.1) in 2014 recommended that with a longer term vision the Secretariat “should develop options to move from exclusive self-evaluation to approaches that combine self-evaluation, peer review and voluntary external evaluations involving a combination of domestic and independent experts. These additional approaches should consider, amongst other things, strategic and operational aspects of the IHR, such as the need for high-level political commitment, and whole of government/multisectoral engagement. Any new monitoring and evaluation scheme should be developed with the active involvement of WHO regional offices and subsequently proposed to all States Parties through the WHO governing bodies’ process”. This recommendation

was further echoed by the Review Committee on the Role of the IHR in the Ebola Outbreak and Response in its fifth recommendation to “introduce and promote external assessment of core capacities”.

TECHNICAL FRAMEWORK FOR IHR MONITORING AND EVALUATION POST 2016

Based on IHR Review committee recommendations, WHO developed a concept note for monitoring and evaluation framework comprising of the existing one mandatory component (States Parties Annual Reporting) and three new voluntary components (after action review, simulation exercises and external evaluation) in 2015. A second technical consultation in Lyon in October 2015, led to the development of the joint external evaluation (JEE) tool based on existing WHO tools and various regional strategies and other initiatives, such as the Global Health Security Agenda (GHSA), World Organisation for Animal Health Performance of Veterinary Services (OIE PVS) Pathway. The JEE was published in February 2016. In addition to evaluating the capacities required under the IHR, the JEE and NAPHS also contributes to the implementation of the Sendai Framework for Disaster Risk Reduction that recognises the importance of implementation of the International Health Regulations (2005) and the building of resilient health systems.

VOLUNTARY JOINT EXTERNAL EVALUATION (JEE)

The technical areas covered in this voluntary component of the technical framework are, grouped into four core areas: – prevent, detect, respond, and IHR related hazards and points of entry. The JEE in this respect considers:

- preventing and reducing the likelihood of outbreaks and other public health hazards and events defined by IHR is essential;
- detecting threats early can save lives;
- rapid and effective response requires multisectoral, national and international coordination and communication; and
- IHR capacities are required at points of entry, and during chemical events and radiation emergencies.

1 - Checklist and indicators for monitoring progress in the development of IHR core capacities in States Parties. WHO/HSE/GCR/2013.2. Geneva: World Health Organization; 2013 (http://apps.who.int/iris/bitstream/10665/84933/1/WHO_HSE_GCR_2013.2_eng.pdf?ua=1, accessed 19 December 2017).

REVISION OF THE JEE TOOL

The first edition of the tool was made available in February 2016, and by the end of December 2017 67 countries had requested a JEE to WHO and completed the voluntary evaluation using this tool. In late 2016, the JEE Secretariat began the process of systematically collecting suggestions and comments on improving the first edition of the JEE tool from WHO Regional Offices, technical area leads in WHO headquarters and external experts who had participated in one or more JEE missions and Member States who had conducted a JEE or were preparing for a JEE. The suggested improvements and comments were collated into an annotated version of the JEE tool and in April 2017, WHO convened a global meeting with over 90 global technical experts and all WHO ROs to discuss the suggested improvements and recommend changes. These changes were incorporated into a revised version of the JEE tool and finalized in mid-2017. This is the second edition of the JEE tool².

SUMMARY OF CHANGES INCORPORATED INTO THE SECOND EDITION OF THE JEE TOOL

The main changes within the second edition of the JEE tool is the inclusion of two financing indicators, the merging of two indicators under legislation into a single one and the renaming of three technical areas (Real time surveillance is now Surveillance, Workforce development is now Human resources and Preparedness is now Emergency preparedness). The tool now has 49 indicators (increase of one indicator from the previous 48), within the 19 technical areas. The second edition of the tool helps clarify issues in the interpretation of various indicators, attributes and questionnaires, with more footnotes. It also clarifies the discrepancy found in national capacities between the human and animal sectors and recommends animal and human health scores for the indicators are given; the lower score of the two is to be considered, rather than the average.

The technical areas of IHR coordination, communication and advocacy, Biosafety and biosecurity, Immunization, National laboratory system, Reporting, Emergency preparedness, Medical countermeasures and personnel deployment,

Linking public health and security authorities, Risk communication, Points of entry, Chemical events and Radiation emergencies, have minor changes for the purpose of clarity and interpretation.

CHANGES IN INDICATORS

Two indicators of National legislation, policy and finance are combined and two additional indicators for finance added. Two indicators on Antimicrobial resistance (AMR) are combined and a new indicator on effective coordination added to align with the global action plan for AMR. For Zoonotic disease, an indicator on workforce is incorporated in the Human resources technical area and the rest of the indicators are updated to better reflect output and outcome. The food safety technical area is split into two to reflect detection and response capacities, respectively. The surveillance technical area now has three indicators where the indicators for event-based, indicator-based and syndromic surveillance are combined as "surveillance systems". The rest of the indicators of Surveillance remain the same with a few changes that reflect output and outcome of the system. The human resources technical area presently consists of four indicators with the addition of a new indicator on in-service training capacities, which incorporates veterinary workforce from Zoonotic disease and is linked to the multisectoral workforce as required for IHR implementation. The Emergency response operations technical area now has three indicators as one of the indicators on case management was moved to Medical countermeasures and personnel deployment. Two indicators on "capacity to activate" and "operational procedures for emergency operations" are combined as "emergency operations centre" and an additional indicator on "emergency response coordination" is added.

Details of the changes incorporated into the second edition of the JEE tool are available in Appendix 2.

PURPOSE OF THE JEE

The JEE is one of the three voluntary process available for MS to request as needed to evaluate country capacity to prevent, detect and rapidly respond to public health threats independently

² - Countries that have already started self-evaluation using the first edition of the JEE tool will be evaluated using the same tool. However, countries that are starting self-evaluation from January 2018 onwards will use the second edition of the JEE tool for self-evaluation and external evaluation.

of whether they are naturally occurring, deliberate or accidental. The purpose of the external evaluation is to measure country-specific status and progress in achieving the targets. This will require a sustainable and flexible process to allow for additional countries to participate and for regular evaluation visits. The first external evaluation will establish a baseline measurement of the country's capacity and capabilities, and subsequent evaluations will identify the progress made and ensure that improvements in capacity are sustainable.

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**. In the joint process during an external evaluation (envisioned to take place approximately once every four to five years), a team of national experts first completes a self-evaluation using the JEE tool that is submitted to the external team prior to the country visit. The external team uses the same tool for their independent evaluation, working together with the national team in interactive sessions.

The external evaluation 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, response and action, and to engage with current and prospective donors as well as partners 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 was developed to provide an external mechanism to evaluate a country's IHR capacity for ensuring health security and use the

expertise of global experts to provide recommendations across the 19 technical areas assessed. The JEE tool draws on the original IHR core capacities and incorporates valuable content and lessons learned from tested external assessment tools and processes of several other multilateral and multisectoral initiatives that supported the building of capacity to prevent, detect and respond to infectious disease threats.

PROCESS FOR VOLUNTARY JEE

The first stage of the process is a self-evaluation using the JEE tool and country implementation guide,⁴ completed by the country with multisectoral engagement. This information is then given to the JEE team consisting of international subject matter experts⁵. Review of this self-evaluation data provides the team members with an understanding of the country's baseline health security capabilities. The JEE team consisting of international subject matter experts then visit the country for facilitated in-depth discussions of the self-reported data and participate in structured site visits and meetings organized by the host country. The evaluation team uses findings from various relevant evaluations and assessments, such as the OIE PVS Pathway, monitoring and evaluation of disaster risk reduction and others.

After conducting the evaluation, the JEE team drafts a report to identify status levels for each indicator and presents an analysis of the country's capabilities, gaps, opportunities and challenges. The draft report is shared with the host country. After the host country concurs with the findings, the final report is published on the WHO website⁶. This approach facilitates international support of country implementation efforts, encourages sharing of best practices and lessons learned, promotes international accountability, engages stakeholders, and informs and guides IHR implementation both in the host country and internationally.⁷

3 - Operational readiness" concept was derived from the 'readiness' definition of United Nations General Assembly, 2017 (see definitions) 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.

4 - International Health Regulations (IHR): joint external evaluation. Country implementation guide. WHO/WHE/CPI/2017.62. Geneva: World Health Organization; 2017 (<http://apps.who.int/iris/bitstream/10665/259605/1/WHO-WHE-CPI-2017.62-eng.pdf>, accessed 17 December 2017).

5 - International Health Regulations (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 17 December 2017).

6 - International Health Regulations (IHR): joint external evaluation: Mission reports. [website] <http://www.who.int/ihr/procedures/mission-reports/en/>, accessed on 30 December 2017)

7 - 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.

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 their current capacity. 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 in addition to the responses. 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 as well as a narrative that document existing capacities, gaps and challenges. The key findings are presented as three to five priority actions for each of the 19 technical areas.

COLOUR SCORING SYSTEM

While there is overlap among the capacity sections of the tool, each capacity is considered separately in the evaluation exercise. The implementation status of each core capacity is indicated by a score, which reflects the country’s level of advancement, its capacity to institutionalize technical area competencies, and ensure that they are sustainable. 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: **Yellow** ●

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: **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

PREVENT

NATIONAL LEGISLATION¹, POLICY AND FINANCING

Targets: Adequate legal framework for States Parties to support and enable the implementation of all their obligations and rights made by the IHR. Development of new or modified legislation in some States Parties for the implementation of the Regulations. Where new or revised legislation may not be specifically required under a State Party's legal system, the State may revise some legislation, regulations or other instruments in order to facilitate their implementation in a more efficient, effective or beneficial manner. 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 implementation of IHR capacities². Financing that can be accessed on time and distributed in response to public health emergencies, is available.

As measured by: (1) Current legislation including laws, regulations, administrative requirements, policies or other government instruments, proven to be adequate in all relevant sectors to support IHR implementation. (2) Adequate finances available to enable efficient and effective IHR implementation and response to all public health emergencies.

Desired impact: Legislation and financing in place in all relevant sectors³ to support IHR implementation including core capacity development and maintenance

1 - The term "legislation" refers to the broad range of legal, regulatory, administrative or other governmental instruments which may be available for States Parties to implement the IHR and which are not necessarily limited to instruments adopted by the legislature. Refer to the WHO guidance on IHR implementation in national legislation (http://www.who.int/hr/legal_issues/legislation/en/, accessed 24 November 2017).

2 - IHR capacities refers to the capacity to prevent, detect, assess, notify and respond to acute public health events, and includes developing and maintaining all essential public health functions that are needed to apply and comply with the IHR.

3 - Relevant sectors include private and public sectors, such as: all levels of the health care system (national, subnational and community/primary public health); nongovernmental organizations (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; the home office; media; and regulatory bodies.

Indicators: National legislation, policy and financing	
Score	P.1.3 A financing mechanism and funds are available for timely response to public health emergencies⁸
No capacity - 1	<p>P.1.1 The State has assessed, adjusted and aligned its domestic legislation, policies and administrative arrangements in all relevant sectors,^{4,5} to enable compliance with the IHR</p> <p>Assessment of relevant legislation, regulations, administrative requirements and other government instruments not undertaken for the implementation of IHR</p> <p>Assessment of relevant legislation, regulations, administrative requirements and other government instruments for IHR implementation has been carried out and required adjustments have been identified</p> <p>The country can demonstrate the existence and use of relevant legislation in all relevant sectors involved in the implementation of the IHR¹⁶</p> <p>The country has legislation references and/or administrative requirements for specific areas (such as current legislation that specifically addresses National IHR Focal Point designation and operations)</p> <p>The country has legislation references and/or administrative requirements for all areas related to IHR implementation</p>
Limited capacity - 2	<p>P.1.2 Financing⁶ is available for the implementation of IHR capacities</p> <p>There is no budget line or budgetary allocation⁹ available to finance the implementation of IHR capacities, and financing for implementation of IHR capacities is handled through extra-budgetary means¹⁰</p> <p>A budgetary allocation or substantial external financing¹¹ is made for some of the relevant sectors¹² and their respective ministries to support the implementation of IHR capacities for biological hazards¹⁴ at the national level</p> <p>A budgetary allocation or substantial external financing is made for human health, veterinary public health, agriculture, and all other relevant ministries or sectors, to support the implementation of all¹⁷ IHR capacities at the national level</p> <p>A sufficient budget²⁰ is allocated with timely distribution²¹ at the national and subnational level(s) in all relevant ministries or sectors for the implementation of all IHR capacities</p> <p>A sufficient budget that is distributed in a timely manner at the national and subnational level(s) in all relevant ministries or sectors is well coordinated in its execution²⁴, for the implementation of all IHR capacities</p>
Developed capacity - 3	<p>Financing for responding to public health emergencies is not identified and funds are allocated and distributed in an ad hoc manner during a public health emergency</p> <p>An emergency public financing mechanism exists¹⁵ that allows for structured reception and rapid distribution of funds for responding to public health emergencies</p> <p>Financing for response is identified¹⁸ for immediate mobilization when needed, at the national, state, province and regional levels for all the relevant sectors¹⁹ in advance of a public health emergency</p>
Demonstrated capacity - 4	<p>The emergency public financing mechanism in place allows for the timely execution²² of funds²³ by all relevant sectors, during a public health emergency</p> <p>Financing can be executed and monitored²⁵ in a timely and coordinated manner at all levels and for all relevant sectors, with an emergency contingency fund²⁶ in place, for response to an acute public health emergency</p>
Sustainable capacity - 5	

4 - Food safety legislation should ideally include all roles and responsibilities necessary to meet the objectives and enforce the various elements of food control to prevent foodborne diseases and food contamination.

5 - Two critical competencies on legislation in the PVS tool are: Critical Competency (CC) IV-1: Preparation of legislation and regulations; and CC IV-2: Implementation of legislation, regulations and compliance. The PVS Pathway mission reports are a good source of information on the state of veterinary legislation in the country.

6 - Financing refers to funds and resources identified, allocated, distributed and executed on activities and interventions. It does not take into account costing or identifying how many resources or funds are necessary for the implementation of activities or interventions.

7 - Funding and a financing mechanism for responding to public health emergencies, that focuses on providing resources to facilitate the surge capacity of the health system and the deployment of interventions that go beyond the routine structure of the health system. This could include legislation in place, such as a public health act and state emergency act.

8 - As defined by the country through a set of triggers that declare a situation as a public health emergency.

9 - A budget line exists and a budget is allocated (the budget line is funded).

10 - Accounts held by government bodies, but not included in the government budget. 11 - Financing from non-domestic sources towards the implementation of IHR capacities that uses the majority of national financing for emergency preparedness, detection and response.

Contextual questions:

1. How are the legislation and regulations developed, reviewed and operationalized in the country?
2. Does the veterinary sector have legislation in place that gives them authority to impose quarantine, stop animal movement, euthanize and reimburse owners for the value of animals/poultry that are sacrificed in order to control/eradicate a disease?
3. What processes and mechanisms are in place to gather and channel financing in response to public health emergencies?
4. Does the country depend on outside sources of financing and other resources for responding to public health emergencies?
5. Is there domestic financing in the national budget for recurrent or predictable public health emergencies?
6. What is the proportion of the national health budget allocated for public health, for IHR functions or health security related activities (i.e. prevention, detection and response)?
7. Is there an existing national plan to strengthen IHR capacities (national health security plan, other), and has this plan been financed?
8. Is there a plan to coordinate the functions and operations of the national IHR with the country's relevant environment and agriculture responders?
9. Is there consistent and timely distribution of funds for recurrent activities that are part of an existing national plan?
10. How are subnational level activities funded?
11. Is there a financial implementation monitoring mechanism in place?
12. What mechanisms exist to engage funding from the private sector?

12 - Agriculture, animal health and human health sectors, as well as other sectors, whose activities contribute to the implementation of IHR capacities. There is a crucial competency on operational funding in the PVS tool CC I-8.
 13 - A government body, mainly ministries at the national level, but could include other spending agencies that have specific yearly public appropriations or budgets, which include line item expenses.

14 - Comprise infectious disease events, including zoonotic diseases and food safety events.

15 - There is a special set of processes or channels in place that activates a special emergency public financing mechanism, allows for rapid reception and distribution of funds, and circumvents the various checks and balances of the normal public financing mechanism. 16 - Emergency response financing from national/regional contingency funds, the World Bank's Pandemic Emergency Financing Facility, other multilateral emergency response funds, or other external sources, are identified and listed by National IHR Focal Points, and contact with focal points in charge of these funds or external sources are made to put in place all the necessary formalities in advance of public health emergencies.

17 - For the animal health sector, this information can be found in the country PVS evaluation report, CC IV-1: Preparation of legislation and regulations; and CC IV-2: Implementation of legislation and regulations and compliance thereof.

18 - IHR capacities for all IHR related hazards (chemical, radiation and biological hazards).

19 - Different hazards or public emergencies involve different sectors (e.g. avian influenza involves ministries of agriculture, health and home). Those sectors identified as relevant in the emergency response plans for each type of hazard have budget lines in place to receive and execute emergency funding. There is critical competency on emergency funding in the PVS tool CC I-9.

20 - This refers to access to funds by relevant ministries or government bodies for the implementation of all IHR capacities. Sufficiency is measured, where possible, by comparing budget allocations amounts to resource needs identified in national plans related to IHR and/or health security.

21 - A release of annual appropriation of financing, usually on a quarterly or monthly basis, for the meeting of financial obligations.

22 - The response to public health emergencies includes a series of interventions, such as supply and equipment procurement, human resource contracting and deployment, and logistical arrangements, and involve actors not usually involved with public sector services, such as NGOs and the private sector, which under normal circumstances can take a fair amount of work and time, and may not even be possible. Mechanisms, including fast-track execution procedures and letters of understanding with non-state actors, need to be in place before an emergency occurs, to allow for expedited spending of funds in such aspects that are crucial to emergency response.

23 - Include domestic funding and funding from external sources, as applicable.

24 - A national authority has coordinated the allocation and execution of financing for activities and interventions to implement IHR capacities.

25 - To assure accountability and guarantee the distribution of resources to where they are most needed, a feedback mechanism is in place to capture and report changing needs and priorities.

26 - An emergency contingency fund exists at the national, regional or international level, with which a national authority can coordinate the reception and distribution of funds.

Technical questions:

P.1.1 The State can demonstrate that it has assessed, adjusted and aligned its domestic legislation²⁷, policies and administrative arrangements in all relevant sectors to enable compliance with the IHR

1. Is there legislation or are there regulations or administrative requirements, or other governmental instruments²⁸ governing public health surveillance and response?
2. Do policies or regulations exist for the use of drugs and chemicals that can be part of public health importance, such as AMR, insecticides?
3. Has an assessment of relevant legislations, regulations or administrative requirements, and other governmental instruments been carried out (to determine if they facilitate full implementation of the IHR)?
4. Does the assessment also identify areas for adjustment for relevant legislation, regulations, administrative requirements and other government instruments for IHR implementation?
5. Is there evidence of using relevant legislation and policies in various sectors involved in the implementation of IHR? Give examples of how rights created by the IHR are exercised and how IHR obligations are complied with.
6. Does the country's legislation or any references address additional specific areas other than the National IHR Focal Point function (designation and its operation); if yes, what are those areas?
7. What are the administrative requirements the country has identified to implement these legislation and/or regulations?
8. How does the country ensure the coordination of legal and regulatory frameworks between sectors? (Show evidence.)

P.1.2 Financing²⁹ is available for the implementation of IHR capacities

1. Who is responsible for financial planning of essential public health functions for health security including disease control?
2. Is there a budget line within a ministry (such as health, agriculture, defence) at the national level for activities related to strengthening IHR core capacities? If not, how is IHR implementation funded?
3. Does the National Strategic Health Sector Plan (NSHSP) or other specific plans (such as the National Action Plan for Health Security, (NAPHS), or Health Emergency Preparedness Plan) include the public health functions needed to apply and comply with the IHR?
4. Are there any memoranda of understanding (MoUs) or other agreement(s) with partners to finance IHR core capacities? If yes, what is the proportion of financing from partners for IHR related functions?
5. Is there a budget available for all relevant ministries for activities related to strengthening and maintaining IHR capacities for all IHR-relevant hazards?
6. If yes, which of the ministries have fully allocated budgets, and what are the possible funding limitations?

²⁷ - These questions should be answered by legal or legislative advisers, or experts at the health ministry or other relevant government offices/National IHR Focal Points. Please ask to see the relevant documents.

²⁸ - Legislation: state constitutions, laws, decrees, ordinances or similar legal instruments.

7. Is external financing for the implementation of IHR capacities larger than the sum of domestic financing for these?
8. Is there timely distribution of funds for the execution of national activities to strengthen and maintain IHR capacities? Are there delays in receiving funds for activities to strengthen IHR capacities?
9. Is there timely distribution of funds for all ministries or sectors at all levels of the system (national and subnational)?
10. Do these funds ensure full implementation of IHR capacities?
11. How does the country ensure coordination of budget planning and development, among different ministries and relevant departments? Does a national authority coordinate different sectors in the implementation of IHR-related activities, and the distribution and execution of their finances?

P.1.3 Financing mechanism and funds are available for timely response²⁹ to public health emergencies

1. How are resources managed by the public sector when a public health emergency occurs? How are resources contributed by external or private actors gathered and disseminated?
2. Does a mechanism which allows for resources to be distributed for responding to a public health emergency in a rapid manner, superseding the public financing mechanisms, and handles the allocation and distribution of public funds for all non-emergency cases, exist?
3. When a public health emergency occurs, does the country know where it can immediately access most of the financing needed to respond to the emergency?
4. Does the country have an agreement set up with the World Bank Pandemic Financing Facility or other 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 externally donated finances and resources? Describe the last time this happened.
6. Does each relevant ministry or public entity have a budget line in place for activities related to responding to public health emergencies?
7. Are there special mechanisms in place that allow for the rapid 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, without having to go through the standard, time-consuming procedures that these normally require?
8. Are there special mechanisms in place that allow for execution of funds to go to private sector or nongovernmental actors, where these normally require special procedures or are excluded from the public provision of services?
9. How does the country ensure coordination of funding related to response to public health emergencies? Is there a national authority that provides oversight regarding the allocation and execution of financing in response to a public health emergency, coordinates the interventions of sectors involved in the response, and executes funds related to these?

29 - Financing refers to funds and resources identified, allocated, distributed and executed on activities and interventions. It does not take into account costing or identifying how many resources or funds are necessary for the implementation of activities or interventions

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. 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.

- 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

30 - Funding and a financing mechanism for responding to public health emergencies, which focuses on providing resources to facilitate the surge capacity of the health system and the deployment of interventions that go beyond the routine structure of the health system. This could include legislation in place, such as a public health act and state emergency act.

IHR COORDINATION, COMMUNICATION AND ADVOCACY

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.

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) 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.

1 - Refer to the National IHR Focal Point Guide (<http://www.who.int/ihr/publications/nfp/en/>, accessed 20 November 2017).

Score	Indicators: IHR coordination, communication and advocacy ²
	P.2.1 A functional mechanism established for the coordination and integration of relevant sectors in the implementation of IHR
No capacity - 1	Coordination mechanism within and between relevant ministries, including government agencies, is not in place
Limited capacity - 2	Coordination mechanism within and between relevant ministries is in place National standard operating procedures (SOPs) or equivalent exists for coordination between the National IHR Focal Point and relevant sectors
Developed capacity - 3	A multisectoral, multidisciplinary body, committee or taskforce addressing IHR requirements for public health emergencies of national and international concern is in place and has participated in the latest event or simulation exercise
Demonstrated capacity - 4	Multisectoral and multidisciplinary coordination and communication mechanisms ³ are in place, tested and updated regularly through exercises or after-action reviews based on the occurrence of an actual event Action plan developed to incorporate lessons learnt from multisectoral and multidisciplinary coordination and communication mechanisms
Sustainable capacity - 5	Annual updates on the status of IHR implementation to stakeholders (including WHO and other IHR States Parties across all relevant sectors) are conducted and confirm the efficiency and effectiveness of the coordination, communication and advocacy arrangements across all relevant sectors

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)?

Technical questions:

P.2.1. A functional mechanism established for the coordination and integration of relevant sectors in the implementation of IHR

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. Is this mechanism placed at a high enough level within the government so that a whole-of-government approach can be taken?
4. 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?

2 - Additional information can be used from the following indicators:

- D.3.1 System for efficient reporting to Food and Agriculture Organization (FAO), OIE and WHO
 - D.3.2 Reporting network and protocols within the country
 - R.3.1 Public health and security authorities (such as law enforcement, border control and customs are linked during a suspect or confirmed biological event)
 - Relevant sectors include private and public sectors, such as: all levels of the health care system (national, subnational 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, tourism; the home office; media; and regulatory bodies.
- 3 - There is critical competency on communication in the PVS tool CC III-1.

5. Are SOPs or guidelines available for coordination between the National IHR Focal Point and other relevant actors?
6. Have functional mechanisms for multisectoral collaboration that include clinical services, animal and human health surveillance units, communication units and laboratories been established?
7. Is there timely and systematic information exchange between District/Provincial Health Offices, animal surveillance units, laboratories, human health surveillance units and other relevant sectors regarding potential zoonotic risks and urgent/emerging zoonotic events?
8. Is there a functional mechanism for multisectoral collaboration with other relevant sectors for other IHR related hazards, such as chemical and radiation sectors?
9. Is there a coordination mechanism for detecting and responding to deliberate and/or accidental events occurring for example in mass gatherings?
10. Is a multisectoral, multidisciplinary coordination and communication mechanism updated and tested regularly?
11. Are action plans developed to incorporate lessons learnt from multisectoral/multidisciplinary coordination and communication mechanisms?
12. Are the updates of IHR implementation shared with other relevant sectors?
13. Have the functions of the National IHR Focal Point been evaluated for effectiveness?

Documentation or evidence for level of capability:

- OIE PVS Pathway reports
- Reports to WHO governing bodies on IHR implementation (such as 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

ANTIMICROBIAL RESISTANCE

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

- a) Multisectoral work spanning human, animal, crops, food safety and environmental aspects. 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 Antimicrobial Resistance Surveillance System (GLASS) 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 tool 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.

Indicators: Antimicrobial resistance (AMR) ²				
Score ¹	P.3.1 Effective multisectoral ³ coordination on AMR	P.3.2 Surveillance of AMR ⁴	P.3.3 Infection prevention and control ^{5,6}	P.3.4 Optimize use of antimicrobial medicines in human and animal health and agriculture
No capacity - 1	No national action plan for AMR	No laboratories that conduct antibiotic susceptibility testing are generating data (antibiotic susceptibility testing and accompanying clinical and epidemiological data) and reporting on AMR	No systematic efforts, national programme, or responsible persons for infection prevention and control in human health care facilities/to promote infection prevention and prevent transmission of resistant bacteria in the animal food production sector	No or weak policy and regulations on appropriate use, availability and quality of antimicrobials
Limited capacity - 2	National AMR action plan under development or plan involves only one sector or ministry Multisectoral coordination mechanism has been established, with government leadership	Some clinical or reference laboratories can produce AMR data locally but national coordination and/or quality management do not yet exist	National water, sanitation and hygiene (WASH) and environmental health standards exist but are not fully implemented National policy and plan are available for infection prevention and control (IPC) in animal health care through improving biosecurity ⁷ , animal vaccination and animal husbandry	National policy for anti-microbial governance and regulation developed, that addresses use, availability and quality of antimicrobials
Developed capacity - 3	National AMR action plan developed that addresses at least human health and animal food production sectors Multisectoral coordination is functional with regular meetings	National AMR surveillance activities are performed according to national standards, with a functional national AMR reference laboratory that participates in external quality assurance and conducts confirmatory or additional testing Country priority pathogens have been identified for surveillance ⁸	National guidelines for IPC in animal production are available and disseminated Selected health care facilities/farms are implementing the guidelines, with monitoring and feedback in place All referral hospitals have WASH facilities that are functional, in line with national standards	Practices to assure appropriate use are implemented in some health care facilities ^{6,9} Legislation and regulations approved on import, marketing authorization, production and use of antimicrobials Guidelines for appropriate use of antimicrobials are available

1 - Since AMR needs to be addressed as a multisectoral issue, the first attribute (3.1) 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 (P.3.2), infection prevention in health care facilities and on farms (P.3.3), and optimizing the use of antimicrobials (P.3.4), focusing on human and animal health sectors only. The assessment of capacities for AMR control should be completed twice for attributes 3.2 to 3.4, as capacities should be separately evaluated in the human health sector and for animal food production sector (terrestrial and aquatic). 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.

2 - In the human health sector, 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. For food production aspects, all antimicrobials are included.

<p>Demonstrated capacity - 4</p>	<p>Multisectoral AMR action plan approved and reflects GAP objectives, with an operational plan and monitoring arrangements</p>	<p>Centrally coordinated national AMR sentinel surveillance system that produces regular reports on AMR resistance levels</p> <p>Sentinel laboratories supporting AMR surveillance that follow quality assurance processes and demonstrate good performance-testing</p>	<p>Nationwide implementation of IPC plans and guidelines in public and private sectors</p> <p>All health care facilities have a suitable functional environment (including water and sanitation facilities), and necessary materials and equipment to perform IPC per national standards</p>	<p>Practices to enable appropriate use are implemented in health facilities nationwide, for all antibiotics¹⁰</p> <p>Practices on appropriate use in animals and crops in line with Codex and OIE standards are available and implemented nationwide</p> <p>Relevant legislation has been reviewed for coherence; gaps/ overlaps/ inconsistencies have been identified</p> <p>Use of antimicrobials for animal growth promotion has been phased out</p>
<p>Sustainable capacity – 5</p>	<p>Multisectoral AMR action plan has identified funding sources, is being implemented and has monitoring in place</p>	<p>The national AMR surveillance system integrates surveillance of AMR in pathogens of concern to human and animal health and agriculture, and generates regular reports</p> <p>Reports provide data that is representative of the general population</p>	<p>PC is in place and functioning at national and health facility levels</p> <p>Infection prevention effectiveness is regularly evaluated, with results published</p> <p>Plans and guidance are updated in response to monitoring</p>	<p>Relevant legislation has been revised and a coherent framework is in place and fully functional, so that only licensed and proven quality drugs are in use</p>

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

4 - 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 is another important element of national AMR action plans, and the plans may also include other types of surveillance; however, while these may be discussed during the JEE, they are not part of the rating.

5 - For the human health sector, attribute P3.3 focuses on infection prevention and control (IPC) in health care facilities, while recognizing that prevention of infection in the community is also critical, through public health education and training of health care workers; surveillance of health care associated infections; multimodal implementation strategies; regular monitoring, audit and feedback of practices at the facility level and national monitoring mechanisms including improving water and sanitation, and increasing vaccination coverage. IPC programmes in the health sector are recommended to include: development and implementation of evidence-based guidelines; with hand hygiene as a key performance indicator; an enabling environment including bed occupancy not exceeding the capacity of the facility; health worker staffing according to patient workload; a hygienic environment including water, sanitation and hygiene (WASH) infrastructure; and availability of IPC materials and equipment. (See IPC Core Components, 2016 (<http://www.who.int/gpsc/core-components.pdf>, accessed 23 November 2017).

6 - For the animal food production sectors, the focus of attribute P3.3 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. 7 - Biosecurity in the context of AMR relates to the prevention of disease transmission in animals. It refers to a set of management and physical measures designed to reduce the risk of introduction, establishment and spread of animal infections to, from and within an animal population (OIE Terrestrial Animal Health Code).

8 - Priority pathogens for surveillance in human health may include some, all or more than the eight pathogens (and bug-drug combinations) selected by the World Health Organization for global reporting at the early implementation stage of GLASS (*Acinetobacter baumannii*, *Escherichia coli*, *Klebsiella pneumoniae*, *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Salmonella spp.*, *Shigella spp.*, *Neisseria gonorrhoeae*). Priority pathogens for animal health and food safety will be defined at the global level in 2017. Surveillance is expected to include *Salmonella spp.* Other priority pathogens may be added by national authorities based on country needs.

9 - 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.

10 - For the animal sector, available OIE PVS Pathway reports should be taken into account. Countries should also give consideration to the most recent response to the tripartite global AMR monitoring questionnaire when undertaking this assessment. There is a relevant critical competency in the PVS tool CC II-9: Veterinary medicines and biologicals.

Contextual questions: N/A

Technical questions:

P.3.1 Effective multisectoral coordination on AMR and the national action plan

1. How is multisectoral work on AMR organized? Is there an intersectoral coordination committee or working group 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 global action plan 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 an 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?

P.3.2 Antimicrobial resistance (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-farm, 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 laboratory¹¹ 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 national coordinating centre¹¹ 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 geographic 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?

¹¹ - 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 (Global Antimicrobial Resistance Surveillance System (GLASS): guide to uploading aggregated antimicrobial resistance data. Geneva: World Health Organization; 2016 <http://apps.who.int/iris/bitstream/10665/251740/1/WHO-DGO-AMR-2016.7-eng.pdf>, accessed 19 December 2017).

¹² - National Coordinating Centre (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 (Global Antimicrobial Resistance Surveillance System (GLASS): guide to uploading aggregated antimicrobial resistance data. Geneva: World Health Organization; 2016 <http://apps.who.int/iris/bitstream/10665/251740/1/WHO-DGO-AMR-2016.7-eng.pdf>, accessed 19 December 2017).

P.3.3 Infection prevention and control

Human health

1. Is there a national IPC programme for human health, including a responsible person and defined goals and strategies at the national level?
2. Is there a national plan for IPC in health care settings? How often is the plan updated and reviewed?
3. How many health care facilities have developed local IPC plans?
4. 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 airborne transmission based precautions? If not, where are they addressed?
5. Do all hospitals have IPC guidelines in place including routine monitoring and provision of feedback on health care practices according to IPC standards? Are there functioning IPC committees at facility level?
6. Are there designated trained IPC professionals in each acute care facility?
7. Is there a national or subnational programme on continuing professional training for health workers that includes key guiding principles of IPC and WASH?
8. 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?
9. How much progress has been made on ensuring safe water, sanitation and hygiene facilities in health care facilities and communities?
10. Is the assessment of WASH included in assessments of the safety and functionality of health facilities for emergencies?
11. What systems are in place at national or subnational levels to regularly monitor health care practices according to IPC standard measures, and to publish the results?
12. Is there a national surveillance programme for healthcare-associated infections (HAI) in place? How does HAI data inform policy for AMR prevention?

Animal health

12. Is there a national plan for preventing infectious diseases in animals? What measures are included (such as biosecurity, vaccine use and coverage, postvaccination monitoring, market hygiene SOPs, farm identification and registries, farm logs, national serological surveillance plans, outbreak/event reporting to national authorities/OIE)?
13. What systems are in place to support the implementation of good animal husbandry practices, biosecurity and vaccine strategies in animal production systems? Are there national plans for vaccination in animals (terrestrial or aquatic)? Is there a system in place to report animal diseases to veterinary services?
14. What is the extent of extension services to farmers, fishermen, livestock owners and cooperatives?
15. What systems are in place to regularly evaluate the effectiveness of infection control measures and publish results in animal health (such as use of the OIE PVS tool)?

16. What alternative strategies and technologies are proposed to support the reduction of antimicrobial use in animal production systems (such as nutritional strategies)?
17. Are there food hygiene practices for harvesting and processing of foods in place and functional?
18. Is there a wastewater management plan in place and being implemented?

P.3.4 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 participates 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.
- Available 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 WASH in health facilities; and
 - percentage of antibiotics administered appropriately (if surveyed).
- Documentation of the review process, including participating agencies or sectors.

References:

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- Guidelines on core components of infection prevention and control programmes at the national and acute health care facility. Geneva: World Health Organization; 2016 (<http://www.who.int/gpsc/core-components.pdf>, accessed 23 November 2017).

ZOO NOTIC DISEASE

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

As measured by: (1) Agreement by the animal health 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 for preparedness, detection, assessment and response to zoonotic diseases.

Desired impact: Functional animal health and public health systems work individually and collaboratively through documented mechanisms 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.

Zoonotic disease ^{2,3}	
Score¹	P.4.1 Coordinated surveillance⁴ systems in place in the animal health and public health sectors for zoonotic diseases/pathogens identified as joint priorities⁵
No capacity - 1	Despite some mechanisms for surveillance of zoonotic diseases exist but are not organized between the animal health or public health system
Limited capacity - 2	Country has a list of five priority zoonotic diseases/pathogens agreed among sectors to be of greatest national public health concern but does not have a specific system for their surveillance in place
Developed capacity - 3	Zoonotic surveillance systems in place for one to four zoonotic diseases/pathogens of greatest public health concern
Demonstrated capacity - 4	Zoonotic surveillance systems in place for five or more priority zoonotic diseases/pathogens of greatest public health concern
Sustainable capacity - 5	Routine sharing of information between the sectors ensures a confirmed surveillance system for zoonotic diseases of priority and/or others
	P.4.2 Mechanisms for responding to infectious and potential zoonotic diseases established and functional
	Despite some mechanisms for specific diseases/pathogens, no coordinated response mechanism for zoonotic diseases is in place
	Documented multisectoral national policy, strategy and/or plan for response to zoonotic events have been elaborated
	An established multisectoral operational mechanism for coordinated response to outbreaks of zoonotic diseases by human, animal and wildlife sectors is in place
	Several experiences of response to zoonotic events confirm “timeliness” ⁶ and efficiency of the multisectoral operational mechanism, including systematic information exchange between animal/wildlife surveillance units, human health surveillance units and other relevant sectors ^{7,8}
	The multisectoral operational mechanism for the response to zoonotic events and emerging diseases is regularly tested for continuous improvement

Contextual questions:

1. For which of the zoonotic diseases of greatest public health concern within the country is it assumed that the prioritized list of zoonotic diseases for the country is based on an intersectoral decision making process?
 - a. What process was used to develop the list of zoonotic diseases of greatest public health concern? Did the process include animal health, as well as environmental and other relevant sectors?
2. Is there a formal multisectoral policy for collaboration on zoonotic diseases in the country? If so, how is it organized/led/governed?

1 - 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.

2 - Zoonotic diseases is an infection or diseases that is transmissible between animals and humans.

3 - Also see section on Food safety indicators for further information.

4 - Surveillance refers to diseases on the agreed list of priority zoonoses. If there is no list, it refers to surveillance for diseases on the list of priority zoonoses of the public health sector.

5 - The indicator refers to the national capacity to detect, assess and respond to zoonotic diseases, and includes consideration of the animal health and human health sector capacity, as well as the collaborative mechanism between them.

6 - Timeliness is judged and determined by each country and is referred to here as the time between detection and response.

7 - 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.

8 - 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 local levels.

3. Is there a national multisectoral coordination committee for one or more zoonotic diseases holding regular meetings currently? If so, which is the lead agency?
4. Is there a mechanism for joint risk assessment for zoonotic disease events?
5. Within the past two years, has an exercise been conducted or a real event occurred involving the ministries of health and agriculture to practice and test the skills of public health workers in both human and animal sectors to investigate and respond to a zoonotic event?
 - a. Describe the exercise or real event that occurred.
 - b. What were the most significant lessons learned from the exercise/real event?
6. List the zoonotic diseases for which control policies exist with the purpose of reducing their spread into human populations?
 - a. Describe the progress in implementing these policies.
 - b. Is there a plan in place to encourage reporting of animal disease (may include indemnities paid)?
 - c. Is there a plan in place to address factors that may prevent farmers/owners from reporting animal disease (may include lack of familiarity with reporting process, lack of indemnity, social stigma)?
7. Has there been an OIE PVS evaluation mission or PVS Gap Analysis? If so, what year(s) was it held?
8. Has there been an IHR-PVS National Bridging Workshop or other "One Health" related workshops for relevant ministries? If so, mention which one(s).

Technical questions:

P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens

1. 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 agriculture⁹ 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 shared between the agencies?
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?

9 - 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.

7. Describe the exchange of epidemiological reports.
 - a. How organized is the exchange of epidemiological reports on zoonotic diseases?
 - b. How are animal surveillance systems linked to surveillance systems used for human pathogens?
 - c. Is there a process for sharing surveillance reports between public health and animal health laboratories?
- P.4.2 Mechanisms for responding to infectious and potential zoonotic diseases established and functional**
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?
 - b. Is there any MoU between the 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. Are there outbreak investigation and response reports on the latest zoonotic events?
 3. Are there any mechanisms for establishing 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 on these recent zoonotic events.
 5. Does the country have capacity to respond to more than 80% of 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 with verification?

Documentation or evidence for level of capability:

- Agreed list of zoonotic priority pathogens in public health
- Descriptions of existing zoonotic surveillance systems
- OIE country PVS Pathway mission report

References:

- OIE PVS Pathway mission reports. World Organisation for Animal Health [website] (<http://www.oie.int/support-to-oie-members/pvs-pathway/>, accessed 23 November 2017).
- Handbook for the assessment of capacities at the human–animal interface. Geneva: World Health Organization; 2017 (<http://apps.who.int/iris/bitstream/10665/254552/1/9789241511889-eng.pdf?ua=1>, accessed 27 December 2017).
- Publications on food safety and related areas. World Health Organization [website] (<http://www.who.int/foodsafety/publications/all/en/>, accessed 23 November 2017).

FOOD SAFETY

Target: Functional system is in place for surveillance and response capacity of States Parties for foodborne disease and food contamination risks or events with effective communication and collaboration among the sectors responsible for food safety.

As measured by: (1) Existence of indicator-based disease surveillance (IBS) or event-based disease surveillance (EBS) and supporting laboratory analysis to detect and assign aetiology 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.

Indicators: Food safety ¹	
Score	P.5.1 Surveillance systems in place for the detection and monitoring of foodborne diseases and food contamination
No capacity - 1	No or very limited surveillance system in place for foodborne diseases or for food contamination (chemical and microbiological) monitoring
Limited capacity - 2	Country has IBS or EBS and monitoring systems in place to monitor trends and detect foodborne events (outbreak or contamination)
Developed capacity - 3	IBS or EBS system includes laboratory analysis to assign aetiology for foodborne diseases or origin of contamination event, and investigate hazards in foods linked to cases, outbreaks or events
Demonstrated capacity - 4	Country has capacity to undertake rapid risk assessments of acute foodborne events at the national and subnational levels
Sustainable capacity - 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
	P.5.2 Mechanisms are established and functioning for the response and management of food safety emergencies
	No or very limited mechanism in place
	Country has a national food safety emergency plan with food safety emergencies defined to serve as a trigger for escalating appropriate response
	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 implementation of response in the event of a food safety emergency
	Strategies and guidance for communicating with partners, stakeholders, general public and international organizations are in place
	The food safety emergency response plan, based on the risk analysis framework, is pretested and reviewed after an emergency has occurred

Notes:

The PVS tool has three critical competencies on food safety of which CC II-8 B (Ante and post mortem inspection at abattoirs and associated premises) and CC II-8 C (Inspection of collection, processing and distribution of products of animal origin) can provide relevant information on country capacity to conduct surveillance on foodborne pathogens.

Contextual questions: N/A

Technical questions:**P.5.1 Surveillance systems in place for the detection and monitoring of foodborne diseases and food 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 subnational 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?

¹ - Refer to the relevant technical area where there is an overlap between one or more technical areas (such as Food safety and Zoonotic disease).

6. Are outbreak response teams trained to collect and transport appropriate specimens to a laboratory during foodborne outbreaks to identify the aetiological 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 (and 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?

P.5.2 Mechanisms are established and functioning for the 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 definition of triggers?
 - 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?
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 makers, leaders, and working teams) 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 OIE National Focal Points? Are there active OIE National Focal Points 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 local 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 simulation exercises to pre-test the emergency response plan?
12. Are there records of feedbacks 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
- Interview 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 simulation exercises to pre-test the response emergency plan
- Record of feedbacks from past emergency reviews

BIOSAFETY AND BIOSECURITY

Target: FA whole-of-government multisectoral national biosafety¹ and biosecurity² system with dangerous pathogens³ identified, held, secured and monitored in a minimal number of facilities according to best practices⁴; biological risk management training and educational outreach conducted to promote a shared culture of responsibility⁵, 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 pathogen biosafety and biosecurity, strain collections, 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 pathogens found in laboratories and a minimal number of holdings across the country, and involving research, diagnostic and biotechnology facilities within all sectors⁶. 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 taken into account according to national and international regulations as appropriate.

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

2 - 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.

3 - 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 23 November 2017).

4 - It is suggested that minimal/best practice would follow the WHO Laboratory biosafety manual⁴.

5 - Responsible life sciences research for global health security: a guidance document. WHO/HSE/GAR/BDP/2010.2. Geneva: World Health Organization; 2010 (http://www.who.int/csr/resources/publications/HSE_GAR_BDP_2010_2/en/ (accessed 21 November 2017).

6 - Within both human and animal health sectors.

Indicators: Biosafety and biosecurity	
Score	P.6.1 Whole-of-government biosafety and biosecurity system in place for all sectors (including human, animal and agriculture facilities)
No capacity - 1	<p>Elements of a comprehensive national biosafety and biosecurity system, such as policy instruments and proper financing⁸, are not in place</p> <p>Some, but not all, elements of a comprehensive biosafety and biosecurity system are in place. The country is:</p> <p>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</p> <p>Developing, but has not finalized, comprehensive national biosafety and biosecurity regulatory framework</p> <p>Developing laboratory licensing</p>
Limited capacity - 2	<p>Comprehensive national biosafety and biosecurity system is being developed. The country is:</p> <p>Finalizing the process to support active monitoring and maintaining of up-to-date records and pathogen inventories within facilities that store or process dangerous pathogens and toxins</p> <p>Finalizing the development and implementation of comprehensive national biosafety and biosecurity regulatory framework including licensing</p> <p>Finalizing the development and implementation of pathogen control measures, operational handling and containment failure reporting systems</p> <p>Starting the consolidation of dangerous pathogens and toxins into a minimum number of facilities</p> <p>Starting to put into place tools and resources to support diagnostics that preclude culturing dangerous pathogens</p> <p>Starting to put in place incident and emergency and response programmes</p>
Developed capacity - 3	<p>Comprehensive national biosafety and biosecurity system is being developed. The country is:</p> <p>Finalizing the process to support active monitoring and maintaining of up-to-date records and pathogen inventories within facilities that store or process dangerous pathogens and toxins</p> <p>Finalizing the development and implementation of comprehensive national biosafety and biosecurity regulatory framework including licensing</p> <p>Finalizing the development and implementation of pathogen control measures, operational handling and containment failure reporting systems</p> <p>Starting the consolidation of dangerous pathogens and toxins into a minimum number of facilities</p> <p>Starting to put into place tools and resources to support diagnostics that preclude culturing dangerous pathogens</p> <p>Starting to put in place incident and emergency and response programmes</p>
	P.6.2 Biosafety and biosecurity training and practices in all relevant sectors⁷ (including human, animal and agriculture)
	<p>No biological biosafety and biosecurity training or plans are in place</p> <p>Country has conducted a training needs assessment and identified gaps in biosafety and biosecurity training but has not yet implemented comprehensive training</p> <p>General lack of awareness among the laboratory workforce of international biosafety and biosecurity best practices for safe, secure and responsible conduct</p> <p>Country does not yet have sustained academic training in institutions proportionate to the assessed risks, including training those who maintain or work with dangerous pathogens and toxins</p> <p>Country has training programmes in place proportionate to the assessed risks and has begun implementation</p> <p>Country has specific training programmes in place at most facilities housing or working with dangerous pathogens and toxins</p> <p>Training on biosafety and biosecurity has been provided to staff at some, but not all, facilities that maintain or work with dangerous pathogens and toxins</p> <p>Country is developing sustained academic training proportionate to the assessed risks, including the one for those who maintain or work with dangerous pathogens and toxins</p>

7 - Relevant sectors include, at minimum, the ministries or agencies that are key to this technical area, such as human health, animal health, environment, food safety, defence, private sector.

8 - Such a comprehensive biosafety and biosecurity system would cover legislation, regulations, requirements and financing.

<p>Demonstrated capacity – 4</p>	<p>Biosafety and biosecurity system is developed, but not sustainable. The country is: Actively monitoring and maintaining an updated record and inventory of pathogens within facilities that store or process dangerous pathogens and toxins Implementing enacted comprehensive national biosafety and biosecurity regulatory framework Implementing laboratory licensing Implementing pathogen control measures, operational handling and containment failure reporting systems Completing the consolidation of dangerous pathogens and toxins into a minimum number of facilities Employing diagnostics that preclude culturing dangerous pathogens Operating incident and emergency and response programmes</p>	<p>Country has training programmes in place Country has training programmes in place at all facilities and staff trained proportionate to the assessed risks, including those that house or work with dangerous pathogens and toxins Country has in place academic training proportionate to the assessed risks, including institutions that train those who maintain or work with dangerous pathogens and toxins Country has limited ability to self-sustain all of the above</p>
<p>Sustainable capacity – 5</p>	<p>Sustainable multisectoral biosafety and biosecurity system is in place Ministries have made available adequate funding and political support for a comprehensive national biosafety and biosecurity system, including maintenance of facilities and equipment</p>	<p>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 Review of training needs assessment is conducted periodically and refresher training on needs areas are conducted periodically Training on emergency response procedures are provided periodically</p>

Contextual questions: N/A

Technical questions:

P.6.1 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 pathogens within facilities that store or process dangerous pathogens and toxins?
 - a. Does the country have in place an updated record of where and in which facilities dangerous pathogens and toxins are housed?
 - i. Have collections of pathogens and toxins 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 “dangerous pathogens and toxins” kept by facilities?

- iii. Is there an agreed list of “dangerous pathogens and toxins” 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 country’s national biosafety legislation, regulations or frameworks.
 - i. How is this information shared with laboratories at subnational 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?
 1. When was the assessment done?
 2. Have the recommendations from those biosecurity and biosafety assessments been put into place?
 - v. What type of laboratory requires a licence in the country?
 - vi. Are there common licence 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?
 - 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 pathogens?
 - d. Personnel security
 - i. Is there a mechanism to determine which personnel are authorized to access pathogens of security concern?
 - ii. Is there evidence that this mechanism is being implemented correctly?

- e. Biosafety and biosecurity practices at facilities housing or working with dangerous pathogens
 - 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 Institutional Biosafety Committee) 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 dangerous pathogens and toxins consolidated into a minimum number of facilities?
 - a. Has the country considered consolidating the locations for dangerous pathogens and toxins?
 - i. If not, will consolidation be considered?
 - b. Have collections of dangerous pathogens been consolidated into a minimum number of facilities?
5. Are they employing diagnostics that preclude culturing dangerous pathogens?
 - a. Does the country utilize diagnostic tests that eliminate the need for culturing dangerous pathogens?
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 biosafety 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 personal protective equipment 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?
 - i. 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-acquired 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?
- P.6.2 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 dangerous pathogens and toxins?
 - a. Is biosafety and biosecurity training in place across all facilities, including those that house or work with dangerous pathogens? 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 dangerous pathogens and toxins?
 - a. Does the country conduct needs 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 dangerous pathogens and toxins?
 - a. Do academic institutions in the country have biosafety training programmes in place, including those training to work with dangerous pathogens?
 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 dangerous pathogen 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 dangerous pathogens and high risk experiments
- Policy document for biorisk or biosafety management in a facility is a written policy statement that is signed and reviewed annually
- OIE country PVS Evaluation mission report (also see section "Prevent – Zoonotic disease")
- OIE country PVS Gap Analysis report (also see section "Prevent – Zoonotic disease")
- OIE country PVS Laboratory mission report

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 and yellow fever). Diseases that are transferable from cattle to humans, such as anthrax and rabies, are also included.

Indicators: Immunization	
Score	
	P.7.2 National vaccine access and delivery
No capacity - 1	<p>P.7.1 Vaccine coverage (measles) as part of national programme</p> <p>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</p> <p>Plan is in place to improve coverage, including supplemental immunization activities</p> <p>Inadequate vaccine procurement and forecasting lead to regular stock-outs at the central and district levels</p>
Limited capacity - 2	<p>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</p> <p>Plan is in place to achieve 90% coverage within the next five years and include supplemental immunization activities</p> <p>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</p> <p>Inadequate vaccine procurement and forecasting lead to occasional stock-outs at central and district levels</p>
Developed capacity - 3	<p>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</p> <p>Plan is in place to achieve 95% coverage within the next three years</p> <p>Vaccine delivery (maintaining cold chain) is available in 40–59% of districts within the country, or vaccine delivery (maintaining cold chain) is available to 40–59% of the target population in the country</p> <p>Vaccine procurement and forecasting lead to no stock-outs of vaccines at central level and occasional stock-outs at district level</p>
Demonstrated capacity - 4	<p>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 2020¹</p> <p>More than 90% of all subnational (districts/provinces or states) units are covered</p> <p>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</p> <p>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</p>
Sustainable capacity - 5	<p>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 2020</p> <p>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</p> <p>Systems to reach marginalized populations using culturally appropriate practices are in place</p> <p>Vaccine delivery has been tested through a nationwide vaccine campaign or functional exercise</p> <p>Functional procurement and vaccine forecasting results in no stock-outs</p>

1 - Global Measles and Rubella: Strategic Plan 2012–2020 (http://apps.who.int/iris/bitstream/10665/44855/1/9789241503396_eng.pdf, accessed 23 November 2017).

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?

Technical questions:**P.7.1 Vaccine coverage (measles) as part of national programme**

1. Does the country have a national-level immunization programme or plan?
 - a. What vaccine-preventable diseases 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 country's plan take into account 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?

P.7.2 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 taken into account when reviewing domestic stock levels.
4. Describe the most recent national vaccine campaign(s) or any recent functional exercises geared towards vaccine distribution and/or administration in the country.
5. Is there specific support (monetary and staffing) for immunization delivery?

References:

- The Expanded Programme on Immunization. World Health Organization [website] (http://www.who.int/immunization/programmes_systems/supply_chain/benefits_of_immunization/en/, accessed 23 November 2017).
- 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 23 November 2017).
- 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?ua=1, accessed 23 November 2017).

DETECT

NATIONAL LABORATORY SYSTEM¹

Target: A Surveillance with a national laboratory system, including all relevant sectors², particularly human and animal health, and effective modern³ point-of-care and laboratory-based diagnostics.

As measured by: (1) A nationwide laboratory system able to reliably conduct at least five of the 10 core tests⁴ on appropriately identified and collected outbreak 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 licencing 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 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.

1 - 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/2> - Relevant sectors include private and public sectors, such as: all levels of the health care system (national, subnational 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, tourism; the home office; media, and regulatory bodies.

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

4 - 10 core tests: A list in each country includes six testing methods selected according to the IHR's immediately notifiable list and the WHO top 10 causes of death in low-income countries: polymerase chain reaction testing for influenza virus; virus culture for poliovirus; serology for HIV; microscopy for *Mycobacterium tuberculosis*; rapid diagnostic testing for *Plasmodium* spp.; and bacterial culture for *Salmonella enteritidis* serotype typhi. These six methods are critical to the detection of epidemic-prone emerging diseases. Competency in these methods is indicated by successful testing for the specific pathogens listed. The remaining four tests should be selected by the country on the basis of major national public health concerns.

Indicators: National laboratory system ^{6,7,8}				
Score ⁵	D.1.1 Laboratory testing ³ for detection of priority diseases ¹⁰	D.1.2 Specimen referral and transport system ¹¹	D.1.3 Effective national diagnostic network ¹²	D.1.4 Laboratory quality system ¹³
No capacity - 1	Country has not taken a risk-based approach to determine at least 10 priority diseases for core testing ¹⁴	No system ¹⁵ in place for transporting specimens from intermediate levels/districts to national laboratories; only ad hoc transportation ¹⁶ is available	No evidence of use of rapid and accurate point-of-care/ ¹⁷ farm-based diagnostics ¹⁸ and laboratory-based diagnostics, and no tier-specific diagnostic testing strategies are documented	There are no national laboratory quality standards
Limited capacity - 2	Country has defined 10 core tests and the national laboratory system is conducting one to two core tests and quality assurance process is in place	System is in place to transport specimens to national laboratories from less than 50% of intermediate levels/districts in the country for advanced diagnostics	Minimal, laboratory diagnostic capability exists within the country, but no tier-specific diagnostic testing strategies are documented. Point-of-care/farm-based diagnostics are being used for country priority diseases ¹⁹	National quality standards have been developed but there is no system for verifying their implementation
Developed capacity - 3	National laboratory system is conducting three to four core tests; susceptibility testing and quality assurance process are in place	System is in place to transport specimens to national laboratories from 50–80% of intermediate levels/districts within the country for advanced diagnostics	Tier-specific diagnostic testing strategies are documented, but not fully implemented. Country is proficient in classical diagnostic techniques including bacteriology, serology and PCR in select laboratories but has limited referral and confirmatory processes. Country is using point-of-care diagnostics for country priority diseases	A system of licensing of laboratories that includes conformity to a national quality standard exists but it is voluntary or is not a requirement for all laboratories

5 - 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.

6 - The indicators refer to the national laboratory capacity for the country.

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

8 - The national laboratory system should include:

- Ability to conduct at least five of the 10 core tests (see footnote 4).
- 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.

9 - Rapid diagnostic test performed and result obtained within 12–48 hours or in a timely manner for triggering and guiding control measures.

10 - Priority diseases – based on the local epidemiology and as defined in national surveillance guidelines for priority diseases and/or notifiable diseases (refer to Glossary and footnote 4).

11 - Transport “system”: Accurately collect and maintain specimen integrity and as written in the SOP.

12 - There is critical competency in the PVS tool CC II-1: Veterinary laboratory diagnosis. The OIE conducts PVS laboratory missions where the network aspects are evaluated.

13 - There is critical competency in the PVS tool CC II-2: Laboratory quality assurance.

14 - Core tests can include local priority tests determined by country-selected indicator pathogens on the basis of major national public health concern. For the animal health sector, core tests mean the ability to test for all diseases on the agreed list of priority zoonotic diseases. If there is no such list, then it is the ability to test for diseases on the list of priority zoonotic diseases of the public health sector.

15 - An organized or established procedure in 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.

16 - “Ad hoc” transport system: no SOP on how to transport sample.

17 - Point-of-care diagnostics is medical diagnostic testing performed outside the clinical laboratory in close proximity to where the patient is receiving care. Point-of-care diagnostics is usually performed by non-laboratory personnel (e.g. with rapid diagnostic kits) and the results are used for clinical decision-making.

18 - Farm based diagnostics: Rapid diagnostic test that can be used in a farm for testing samples.

19 - It is important that the process of defining priority diseases involves veterinary services and appropriate international consultation (such as with OIE and WHO).

<p>Demonstrated capacity – 4</p>	<p>National laboratory system is conducting three to four core tests; susceptibility testing and quality assurance process are in place</p>	<p>System is in place to transport specimens to national laboratories from at least 80% of intermediate levels/districts within the country for advanced diagnostics</p>	<p>Country has documented and fully implemented tier-specific diagnostic testing strategies, and a national system of sample referral and confirmatory diagnostics culminating in performance of molecular or serological techniques at national and/or regional laboratories</p> <p>Point-of-care/farm-based diagnostics are being used according to tier-specific diagnostic testing strategies for diagnosis of country priority diseases</p>	<p>Mandatory licensing of all laboratories is in place and conformity to a national quality standard is required</p>
<p>Sustainable capacity – 5</p>	<p>Systems for quality assurance are in place and results are disseminated regularly</p>	<p>Transport of specimens to/from other laboratories in the region and funded from the host country budget</p>	<p>Country has capability for performing advanced molecular and serological techniques as part of a national system of sample referral and confirmatory diagnostics</p> <p>Country is using accurate point-of-care/farm-based diagnostics as defined by tier-specific diagnostic testing strategies</p> <p>Country is also formally engaging other reference laboratories for testing capacity not available in the country, where needed, to supplement the national diagnostic testing strategies for seven or more of the 10 laboratory tests required for priority diseases. Country is able to sustain this capability on its own</p>	<p>Mandatory licensing of all laboratories is in place and conformity to an international quality standard is required</p>

Contextual questions:

1. What are the priority diseases of the country and which of these are tested in the country?
2. Which of the 10 core tests is the country capable of conducting?
3. 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 10 priority diseases?

4. Have national laboratories been accredited?
 - e. If yes, to what standard?
 - f. Are guidelines and protocols for quality management system enforced and in use by public and animal health laboratories?
 - g. Is there a national body that oversees internal quality controls and EQA schemes for public health laboratories at all levels?
 - h. Are all laboratories enrolled in the EQA programme for the tests they perform to detect any of the 10 priority diseases?
5. 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.)
6. Is personal protective equipment available for laboratory staff?
 - i. How is availability of personal protective equipment tracked for laboratories?
 - j. Describe the training procedures for personal protective equipment use in national laboratories.
7. What biosecurity/biosafety training is provided to laboratory workers? (See related technical questions in Prevent – Biosafety and biosecurity.)

Technical questions:

D.1.1 Laboratory testing for detection of priority diseases

1. Is there a set of national diagnostic algorithms for performance of core laboratory tests that has been aligned with international standards (i.e. Clinical and Laboratory Standards Institute (CLSI), OIE, WHO)?
2. How many of the core tests for the 10 priority diseases are implemented 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?
 - b. Are there official agreements with laboratories outside the country for specialized testing not available in the country?
3. Has the country identified four country-specific tests? Has the country prioritized implementation of the 10 core tests? What is the anticipated testing load for each (or highest priority) test? Has the country selected which protocols to use for each test? Does the country have plans in place for procurement of supplies? Does the laboratory have quality assurance/quality control/Quality Management System (QMS) plans in place?
4. Do laboratories have the required equipment (based on testing appropriate for the level in the tiered laboratory network) to support core laboratory tests? Are maintenance contracts in place for key equipment and is preventive maintenance implemented regularly?
5. How does the country ensure standardization of testing? Do national laboratories send out samples for testing validation of more local/regional laboratories?
6. 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 performance of core laboratory tests?
7. How does the laboratory system manage testing and reporting on antimicrobial susceptibility?
 - a. Does a national plan for the detection and reporting of antimicrobial resistant pathogens exist?
 - b. How many laboratories are able to conduct sensitivity testing and reporting?
 - c. Which pathogens and antimicrobial susceptibility patterns can be tested for?
 - d. How are these data validated? Is the data reporting and validation mechanism functional?

- e. Have laboratory methods been verified and the quality monitored, such as through external quality assurance? Does the laboratory participate in national/international proficiency testing? Is there a QMS for laboratories in the AMR surveillance system?
- f. How and to whom is data reported?
- g. What interpretive criteria are used to report antimicrobial susceptibility testing results (such as CLSI, European Committee on Antimicrobial Susceptibility Testing (EUCAST))? Are clinical breakpoints used or epidemiological cut-offs?

D.1.2 Specimen referral and transport system

1. Is the specimen referral network documented for each of the tests necessary to detect and confirm aetiologies 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. Will 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. Does the host country participate in a regional (international) laboratory network?

D.1.3 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?
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?

D.1.4 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?
 - a. If yes, describe the inspection mechanism (frequency, procedures, sanctions, etc.)
6. Is there a national body in charge of laboratory certification (e.g. using ISO 9001)?
 - a. If yes, provide name(s).
7. 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?
 - c. If yes, provide name(s).
8. Are some laboratories accredited for disease-specific testing by WHO (e.g. polio, measles, HIV genotyping)?
9. Provide the number of laboratories certified or accredited and specify to which standard.
10. Is there a specific national document that describes the registration procedure for in vitro diagnostic devices (i.e. kits and reagents)?
11. Is there a national regulatory authority responsible for in vitro diagnostic devices qualification or registration?
 - a. If yes, provide a summary of the qualification or registration mechanisms.
12. Besides the inspection, certification or accreditation detailed above is any other kind of supervision organized?
 - a. If yes or partial, describe the supervision plan and procedures (e.g. through specific networks like tuberculosis control or surveillance programmes).
13. Are there standardized supervision checklists or procedures?
14. When supervised, do the laboratories receive a report after each supervision visit?
15. Are there indicators to measure progress in laboratory test quality? If yes, list these indicators.
16. 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?
17. 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?

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 and standards (Manual) 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] (<http://wwwnc.cdc.gov/eid/article/18/7/12-0487-t2>, accessed 23 November 2017).
- Laboratory assessment tool. World Health Organization [website] (WHO/HSE/GCR/LYO/2012.2, http://www.who.int/ihp/publications/laboratory_tool/en/, accessed 23 November 2017).
- All OIE relevant tools and standards. World Organisation for Animal Health [website] (<http://www.oie.int/en/support-to-oie-members/pvs-evaluations/oie-pvs-tool/>, accessed 23 December 2017).

SURVEILLANCE

Target: (1) Strengthened indicator-based and event-based 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 subnational (local and intermediate), national and international levels of authority regarding surveillance of events of public health significance; and (3) improved national and intermediate level regional capacity to analyse and link data from and between, strengthened early-warning surveillance, including interoperable¹, interconnected electronic tools. This would incorporate 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 and OIE guidelines.

As measured by: (1) Surveillance² for at least three core syndromes³ indicative of potential public health emergencies conducted according to international standards. (2) Regular analysis and reporting of surveillance data.

Desired impact: (1) A functioning public health surveillance system⁴ capable of identifying potential events of concern for public health and health security⁵. (2) Enhanced national and intermediate level regional capacity to analyse and link data from and between the different levels of the strengthened early-warning surveillance system⁶.

1 - Interoperable, describes the extent to which systems and devices can exchange data, and interpret that shared data. For two systems to be interoperable, they must be able to exchange data and subsequently present that data in a manner that can be understood by the user (definition by Healthcare Information and Management Systems Society).

2 - Surveillance, means 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.

3 - Internationally recognized standards for syndromic surveillance are available for the following five syndromes: (i) severe acute respiratory syndrome, (ii) acute flaccid paralysis, (iii) acute haemorrhagic fever, (iv) acute watery diarrhoea with dehydration, and (v) acute jaundice syndrome. Three core syndromes are chosen depending on national disease control priorities. The surveillance system should include epidemiological data and laboratory findings, which should be analysed by trained epidemiologists.

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

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

6 - 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.

Indicators: Surveillance				
Score	D.2.1 Surveillance systems ^{7,8,9}	D.2.2 Use of electronic tools	D.2.3 Analysis of surveillance data	
No capacity - 1	The country has no surveillance system for diseases/syndromes/events	There is no electronic tool to collect, report or analyse surveillance data	There is no capacity to analyse reported data	
Limited capacity - 2	Surveillance system is in place relying either on IBS or EBS or both ¹⁰ (including syndromic surveillance) and supported by SOPs and/or technical guidelines for surveillance. There is no systematic ¹¹ immediate reporting and weekly reporting of events and/or data	Ad hoc electronic tools have been developed to facilitate the collection, reporting or the analysis of surveillance data and events (e.g. Excel spreadsheets), or country is developing an integrated electronic real-time reporting system for public health surveillance	Sporadic reports are analysed on some priority diseases or unusual events are produced, often with delay	
Developed capacity - 3	Both IBS and EBS are in place at the central and intermediate levels, and receive immediate and weekly reporting from the local level on an ad hoc basis.	Information technology tools available at the national level that permit management of a surveillance database and an event management system	Regular annual or monthly reporting of data with some delay and minimum analysis of data is done by an ad hoc team	
Demonstrated capacity - 4	Both IBS and EBS are in place at all the levels (national, intermediate and local) and receive immediate and weekly reports from all health facilities ¹² of the country and some mechanism ¹³ of cross-border surveillance is in place	Country has in place a secure integrated electronic surveillance tool for public health surveillance at all levels of the health system This tool permits the analysis of data and the automatic production of epidemiological bulletins	More often than weekly reporting with analysis Assessment of risk is done by an expert Regular epidemiological bulletins are disseminated	
Sustainable capacity - 5	The performance of the surveillance system is regularly evaluated and updated at all levels in the country and has the capacity to support other countries in developing surveillance systems and/or contributes to regional or international surveillance networks ¹⁴	The surveillance system is equipped with a fully secure interoperable, electronic tool for public health surveillance that is: connected to other relevant electronic tools (e.g. animal health), and can easily share data with other electronic tools used either at regional or international levels	More frequently than weekly systematic reporting Dedicated team in place for data analysis, risk assessment and reporting	

7 - The indicator refers to surveillance capacity for the country.

8 - The surveillance system should include:

- ability to conduct surveillance for at least three core syndromes indicative of a public health emergency;
- 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.

9 - There is critical competency in the PVS tool CC II-5: Epidemiological surveillance and early detection.

10 - EBS is defined as the organized collection, monitoring, assessment and interpretation of mainly unstructured ad hoc information regarding health events or risks, which may represent an acute risk to human health. EBS is a functional component of early warning and response.

11 - Methodical in procedure or plan (marked by thoroughness and regularity of the effort).

12 - Public and private health facilities at all levels of the public health system.

13 - Mechanism for cross-border surveillance – agreed cross-border surveillance system at points of entry or some other mechanism of regularly sharing data and information between neighbouring countries where applicable.

14 - At the national level to identify public health events, use disease thresholds of IBS or implement a specific triage process to check if the event is unusual or unexpected. Refer to WHO guidance for the use of Annex 2 of the International Health Regulations (2005) for Decision instrument for the assessment and notification of events that may constitute a public health emergency of international concern (http://www.who.int/ihr/publications/annex_2_guidance/en/, accessed 24 November 2017).

Contextual question:

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 implement in the future?
6. Are data from these systems shared between sectors, or independent?

Technical questions:**D.2.1 Surveillance systems**

1. Describe in-country EBS.
 - a. Describe sources utilized by EBS and mechanisms of collecting information.
 - b. Does EBS exist at any subnational (intermediate or local) level?
2. Describe IBS and mechanisms of collecting data.
 - a. List of priority diseases, conditions, syndromes and case definitions.
 - b. Does the country have completeness and timeliness of reporting from at least 80% of all reporting units?
3. Describe data validation and quality assurance systems/efforts.
4. Describe syndromic surveillance systems that are in place within the country.
 - a. Describe various syndromes and pathogens that are detected and reported.
 - b. Describe how many sites participate in each surveillance system.
 - c. Describe how data are validated.
 - d. Describe any syndromic surveillance system that utilizes electronic reporting.
 - e. Describe reports that are produced by each surveillance system and how they are used by public health decision makers. Are these reports shared with any other ministries within the country?
 - f. Describe any linkages that exist between systems at the national level.

D.2.2 Use of electronic tools

1. How are public health staff trained on disease surveillance systems?
2. How are clinical staff trained to report on notifiable diseases?
3. Do public health staff at national/intermediate/regional levels have the skills to analyse surveillance data to create information triggering/supporting action?
4. How does the country utilize electronic reporting systems for notifiable diseases for human health and animal health?
5. Are these systems shared between sectors, or are they independent?
6. If no electronic reporting systems exist in the country, are there plans to implement electronic reporting in the future?

7. Describe the reporting and feedback to intermediate/regional and local levels.
 8. Describe reporting to national and intermediate/regional level stakeholders.
 9. Describe public reporting.
- ### D.2.3 Analysis of surveillance data
1. Describe how surveillance data are analysed.
 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 local 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?

Documentation or evidence for level of capability:

- Samples of surveillance reports used by public health decision-makers in the country
- Listing of core syndromes indicative of a public health emergency
- Plans for enhancing syndromic surveillance
- Plans for developing or enhancing EBS
- OIE reports (World Animal Health Information System – 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/10665/112667/1/WHO_HSE_GCR_LYO_2014.4_eng.pdf?ua=1, accessed 23 November 2017).
- InternationalHealthRegulations(2005). 2ndedition. Geneva: WorldHealthOrganization; 2008 (http://whqlibdoc.who.int/publications/2008/9789241580410_eng.pdf, accessed 23 November 2017; 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] (<http://www.oie.int/international-standard-setting/terrestrial-code/access-online/>, accessed 23 November 2017).
- Manual of diagnostic tests and vaccines for terrestrial animals (2017). World Organisation for Animal Health [website] (<http://www.oie.int/en/international-standard-setting/terrestrial-manual/access-online/>, accessed 23 November 2017).

REPORTING

Target: Timely and accurate disease reporting according to WHO requirements and consistent relay of information to FAO and OIE.

As measured by: Establishment of a system¹ to report potential public health events of international concern to WHO, and to meet the needs of other official reporting systems, such as OIE-WAHIS.

Desired impact: The National IHR Focal Points, the OIE Delegate, and WAHIS National Focal Point 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.

¹ - Existence of protocols, processes, regulations and/or legislation governing reporting and processes for multisectoral coordination in response to a potential PHEIC to WHO and to the OIE for relevant zoonotic diseases.

Score	Indicators: Reporting ^{2,3,4}
	D.3.1 System for efficient reporting to FAO, OIE and WHO⁵
No capacity - 1	No National IHR Focal Point, OIE Delegate and/or WAHIS National Focal Point has been identified and/or the identified focal point/delegate does not have access to the learning package and best practices as provided by FAO, OIE and WHO
Limited capacity - 2	Country has identified the National IHR Focal Point, the OIE Delegate and WAHIS National Focal Point; and the focal point/delegate has access to the learning package and best practices as provided by FAO, OIE and WHO
Developed capacity - 3	Country has demonstrated ability to identify a potential PHEIC and file a report to WHO and similarly to the OIE (according to OIE processes) for relevant zoonotic diseases, based on an exercise or real event
Demonstrated capacity - 4	Country has demonstrated ability to identify a potential PHEIC and file a report to WHO within 24 hours and similarly to the OIE (according to OIE processes) for relevant zoonotic diseases, based on an exercise or real event
Sustainable capacity - 5	Country has demonstrated ability to identify a potential PHEIC and file a report within 24 hours, and similarly to the OIE (according to OIE processes) for relevant zoonotic diseases, and has a multisectoral process in place for assessing potential events for reporting
	D.3.2 Reporting network and protocols in country
	Country does not have protocols or processes for reporting to FAO, OIE or WHO; and does not have plans to establish plans and protocols for reporting within the next year
	Country is in the process of developing and establishing protocols, processes, regulations, and/or legislation governing reporting to start implementation within a year
	Country has established protocols, processes, regulations and/or legislation governing reporting and processes for multisectoral coordination in response to a potential PHEIC to WHO and to the OIE for relevant zoonotic diseases
	Country demonstrates timely reporting of a potential PHEIC to WHO and to the OIE for relevant zoonotic diseases in alignment with national and international standards in selected intermediate levels (districts or regions), based on an exercise or real event
	Country demonstrates timely reporting of a potential PHEIC to the WHO from district to national and international levels and to the OIE for relevant zoonotic diseases, based on an exercise or real event
	Country has a sustainable process for maintaining and improving reporting and communication capabilities, and communication mechanisms are backed by established documentation (such as protocols, regulations, legislation)

Contextual questions: N/A

Technical questions:

D.3.1 System for efficient reporting to FAO, OIE and WHO

1. Which ministry or office within the country has been identified as the National IHR Focal Point and informed to the WHO?
 - a. Is the National IHR Focal Point able to cover all incidents (biological, chemical, radiation) under IHR and currently operational?
 - b. Is there an operational OIE Contact Point?
 - c. Are food safety issues due to microbiological origin reported through the National IHR Focal Point and to the OIE?

2 - All questions should be answered to reflect human and animal diseases.
 3 - Need to ensure that animal health officials (FAO and OIE) should be present for this technical area. This is directly related to protocols for reporting mechanisms across agencies in both indicators.
 4 - Indicator D.3.1 is related to whether the National IHR Focal Point can report (an efficient system exists); indicator D.3.2 is the detailed structure and procedures behind the National IHR Focal Point and how the National IHR Focal Point gathers information and verifies as part of the reporting process.
 5 - Not all countries will have reported a potential PHEIC to the WHO or reported to the OIE for relevant zoonotic diseases.

- d. Is there a mechanism to ensure that the National IHR Focal Point and OIE Contact Points exchange information when needed (e.g. for zoonotic diseases)?
 - e. Describe the training that the National IHR Focal Point/OIE Contact Point responsible person(s) have undergone for this specific role.
 - f. List the ministries (such as health, agriculture) that these focal points represent for the WHO/OIE and which one reports through the National IHR Focal point.
2. What are the mechanisms for public health, animal health and security authorities to make decisions on reporting?
 3. Describe if the country has multilateral regional (international) or bilateral neighbouring country reporting requirements. If yes, specify.
 4. Is there anything that limits the performance of the National IHR Focal Point? (This may include quality and timeliness of information received, and obstacles caused by coordination with other levels and sectors.)
 - a. Does the National IHR Focal Point use informal consultation mechanisms with WHO under Article 8 of the IHR?
 - b. Does the National IHR Focal Point use bilateral exchange mechanisms with other National IHR Focal Points?

D.3.2 Reporting network and protocols in country

1. Describe the most recent exercise (or event) that tested the country's systems to identify and report on a potential PHEIC.
 - a. How was the health event identified? What surveillance systems were linked?
 - b. How were public health decision-makers and other leadership consulted in the decision-making process?
 - c. Which ministries were engaged in the exercise or event (health, defence, agriculture)?
 - d. If the country has not yet exercised PHEIC reporting, identify if there are any plans to do so within the next year.
2. Has the country passed legislation or other policies related to procedures and/or approvals for reporting on a potential PHEIC to the WHO? If so, describe the parties involved in approvals as well as the major steps in approvals. If possible, provide a copy of relevant legislation or policies.
3. Does the country have SOPs in place for approving and reporting on a potential PHEIC to WHO?

Documentation or evidence for level of capability:

- WHO IHR Annex 2
- OIE Terrestrial Animals and Health Code – Section 1
- IHR reports to the WHA
- Legislation, protocols or other policies related to reporting to WHO and OIE
- WAHIS

References:

- Annex 2 of the International Health Regulations (2005). World Health Organization [website] (http://www.who.int/ihr/annex_2/en/, accessed 23 November 2017).
- Terrestrial animal health code (2017). Volume 1. General provisions. World Organisation for Animal Health [website] (<http://www.oie.int/international-standard-setting/terrestrial-code/access-online/>, accessed 23 November 2017).
- Decision No. 1082/2013/EU of the European Parliament and of the Council of 22 October 2013 on serious cross-border threats to health and repealing. Decision No. 2119/98/EC, Official Journal of the European Union 2013; 293:1-15 (https://ec.europa.eu/health/sites/health/files/preparedness_response/docs/decision_serious_crossborder_threats_22102013_en.pdf, accessed 23 November 2017).

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 and biomedical technicians. There is a corresponding workforce in the animal sector of veterinarians, animal health professionals, para-veterinarians, epidemiologists and IT specialists.

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 IHR and PVS core competencies. 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.

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.

Indicators: Human resources (animal ¹ and human health sectors)				
Score ⁵	D.4.1 An up-to-date multisectoral workforce strategy is in place ²	D.4.2 Human resources are available to effectively implement IHR	D.4.3 In-service trainings are available ³	D.4.4 FETP ⁴ or other applied epidemiology training programme is in place
No capacity - 1	No strategy in place to develop a multisectoral health workforce	Country does not have appropriate human resources ⁵ capacity in relevant sectors required for epidemic preparedness and control	No continuing professional education (CPE) programme through in-service training course is in place	No FETP or applied epidemiology training programme is established
Limited capacity - 2	A strategy to develop health care workforce ⁶ exists but does not include all relevant sectors of public health professions (such as epidemiologists, social scientists, IT specialists, veterinarians/livestock specialists and community health workers) Basic data on human resources for health are available	Appropriate human resources are available at national level for epidemic preparedness and control	Ad hoc trainings are available for various professions/cadres through disease specific programmes or targeted initiatives	No FETP or applied epidemiology training programme is established within the country at the national level, but staff participate in a programme hosted in another country through an existing agreement (at any level)
Developed capacity - 3	A multisectoral public health workforce strategy exists, but is not regularly reviewed, updated or implemented consistently	Appropriate human resources are available in relevant sectors and at national and intermediate levels	Regular trainings, including One Health approach for zoonotic diseases, are available for various professions/cadres through disease-specific programmes or targeted initiatives	One level of FETP (basic, intermediate, or advanced) ⁷ or comparable applied epidemiology training programme is in place in the country or in another country through an existing agreement
Demonstrated capacity - 4	A public health workforce strategy ⁸ has been adopted and implemented consistently, and is reviewed, tracked and reported on annually	Human resources are available as required in relevant sectors and at relevant levels of the public health system (such as epidemiologist at national and intermediate levels, and assistant epidemiologist (or short course trained epidemiologist) at the local level)	Training plans are developed and regular trainings are conducted by professional bodies or relevant institutions/units to establish skills and competency standards for the workforce at the national level	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
Sustainable capacity - 5	Public health workforce retention is tracked and plans are in place to provide continuous education, as well as retain and promote a qualified workforce within the national system	Country has capacity to send and receive multidisciplinary personnel within the country (shifting resources) and internationally to assist other countries in developing capacities for epidemic preparedness and control	In-service trainings are regularly conducted at national and subnational levels, and professional bodies or relevant institutions/units regularly review and update training offers	Three levels of FETP (basic, intermediate and advanced) or comparable applied epidemiology training programme(s) ⁹ are in place in the country or in another country through an existing agreement, with sustainable national funding

Contextual questions: N/A

Technical questions:

D.4.1 An updated workforce strategy is in place

1. Is there a strategy to ensure that appropriate workforce and human resources for the health sector are in place?
 - a. 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 aging employees, staff departures or other reasons)?
 - a. What is the median number of years that public health personnel have been on staff rolls within the ministry and/or national institutes?
 - b. Are there incentives in place to maintain the existing public health workforce in the country?

1 - There is critical competency in the PVS tool CC I-1: Professional and technical staffing of the veterinary services; CC I-2: Competencies of the veterinarians and veterinary para-professionals; and CC I-3: Continuing education.

2 - The indicator D.4.1 refers to a multisectoral public health workforce capacity for the country. This includes primary care service providers.

3 - In-service trainings offer CPE through face-to-face trainings, blended or e-learning offers, short courses, exercises, and advanced trainings that complement and/or advance knowledge, skills and competencies. These can be offered by national/regional training institutes, universities or national professional bodies and should respond to a nationally agreed CPE programme.

4 - Field epidemiology training programme: Check Glossary.

5 - Appropriate human resources: Human resources include nurses and midwives, physicians, public health and environmental specialists, social scientists, communication specialists, occupational health specialists, laboratory scientists/technicians, biostatisticians, IT specialists and biomedical technicians. There is a corresponding workforce in the animal sector of veterinarians, animal health professionals, para-veterinarians, epidemiologists and IT specialists, etc.

6 - Workforce development is a cross-cutting element, and IHR implementation will depend on a strong public health workforce. Implementation of IHR depends on 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.

7 - FETP Basic Level Training is for local health staff and consists of limited classroom hours interspersed throughout as a three-to-five month 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. 8 - Public health workforce planning should cover both the animal and human health sectors and should include:

- Public health specialists, epidemiologists, social scientists, biostatisticians, veterinarians, epidemiologists, veterinary epidemiologists, veterinary public health specialists and other public health personnel.
- Primary care providers (physicians, nurses, midwives), veterinarians and para-veterinarians.
- Community health workers and staff information systems specialists (such as laboratory specialists/technicians, biomedical technicians), for supportive functions.

Public health workforce planning should also include:

- Indication of trainings that have been provided at the national level or are available to staff from a partner entity. Description of long-term training programmes that are available to help expand the pipeline of qualified public health professionals within the country. Description of implementation of occupational safety and health to all public and private health care facilities and to farms.
- 9 - Comparable applied epidemiology training programmes or those specialized in epidemiology would be similar to these levels defined above.

- 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?

D.4.2 Human resources are available to effectively implement 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 for different levels of the health system (local, intermediate and national)?
 - b. To what extent are these capacities available (only at national level or below)?
 - c. Does each local 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 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 public health personnel.
3. Describe how professionals at the national, intermediate and local 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?

D.4.3 In-service trainings are available

1. Are there CPE programmes for public health officers, surveillance officers, nurses, midwives, general medical practitioners, veterinarians, 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-/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?
 - a. If yes, describe briefly (regular/on demand).

D.4.4 FETP or other applied epidemiology training programme in place

1. Describe current field epidemiology capacity in the country.
 - a. Describe the training programme for field epidemiologists. Who conducts this training?
 - b. How is field epidemiology capacity tracked in the country?
2. Is there an FETP or other standard epidemiology training programme in the country?
 - a. Describe current field epidemiology capacity in the country.

- b. Does the epidemiology training programme target current members of the public health workforce, or students, or both?
- c. How is field epidemiology capacity tracked in the country?
- d. Describe how epidemiologists at the national, intermediate and local levels communicate on a regular basis. Are there standard reporting connections between these levels?
 - e. Have veterinarians participated in the epidemiology training programme?
 - f. Provide measures on the number of epidemiology training programme graduates in the country and their current positions.
 - g. Describe the mentorship programme for epidemiology training programme residents.
 - h. Is there a partnership with other countries in the region to share epidemiology training programme graduates during emergency events?
 - i. How many trained field epidemiologists are available to support investigations throughout the country?
 - j. Does each intermediate level/district (or other similar administrative division) have field epidemiology capacity?
3. Describe any other 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)
 - d. Biostatisticians
 - e. Laboratory assistants and specialists.
4. Is there a professional veterinarian association in the country? Does it have a CPE? If yes, what does it cover? How is it financed?
5. Is there a specific training on zoonosis in the human medicine curriculum or in any CPE programme for medical practitioners?

Documentation or evidence for level of capability.

- Sample field epidemiology training curriculum used in the country
 - Number of graduates/year, 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
 - Data from human resource information systems, if available
 - Post and staff list, if available; staff turnover, and number of staff attending in-service 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.

RESPOND

EMERGENCY PREPAREDNESS

Target: States Parties are in “emergency preparedness” (defined as, the knowledge and capacities and organizational systems developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from the impacts of likely, imminent, emerging or current emergencies), which is a combination of planning, allocation of resources, training, exercising, and organizing to build, sustain and improve operational capabilities at national, intermediate and local or primary response levels based on strategic risk assessments. The strategic risk assessment identifies, analyses and evaluates the range of risks in a country and enables risks to be assigned a level of priority and includes analyses of potential hazards exposures and vulnerabilities, identification and mapping of available resources, and analyses of capacities (routine and surge) at the national, intermediate and local or primary levels to manage the risks of outbreaks and other emergencies. Emergency preparedness applies to any hazard that may cause an emergency and includes biological, chemical, radiological and nuclear, natural, other technological and societal hazards.

As measured by: (1) Existence of national strategic multihazard emergency risk assessments (risk profiles) and resource mapping. (2) Existence of multihazard emergency response plans. (3) Evidence, from exercises, after-action and other reviews of effective and efficient multisectoral emergency response operations for outbreaks and other public health emergencies.

Desired impact: Multisectoral actors at national and subnational (local and intermediate) levels have a common understanding of the priority risks and ready for timely, effective and efficient emergency response operations for outbreaks and other emergencies.

Indicators: Emergency preparedness	
Score	R. 1.1 Strategic emergency risk assessments¹ conducted and emergency resources identified and mapped
No capacity - 1	A national emergency risk profile based on a strategic multihazard emergency risk assessment is not available or has not been updated in the past five years National level inventories and maps of multisectoral resources for emergency response are not available or have not been updated in the past five years
Limited capacity - 2	A national strategic multihazard emergency risk assessment has been conducted in the past five years and documented in a national health emergency risk profile National level inventories and maps of health sector resources for emergency response are available and have been updated in the past five years
Developed capacity - 3	National resources for emergency response in all relevant sectors have been identified and mapped (such as logistics, staff/experts, finance) in the past two years A plan for the management and distribution of national stockpiles is in place
Demonstrated capacity - 4	Strategic multihazard emergency risk assessments and mapping of resources for emergency response at subnational levels have been developed in the past two years National level resource mapping has been reviewed at least on an annual basis, and stockpiles (critical stock levels) for responding to priority biological, chemical and radiological events and other emergencies are accessible
Sustainable capacity - 5	National profiles on risk and resource maps, are monitored and regularly updated (e.g. on annual basis) to accommodate emerging threats and is shared regularly among sectors
	R. 1.2 National multisectoral multihazard emergency preparedness measures, including emergency response plans², are developed, implemented and tested
	A national multisectoral multihazard plan for strengthening emergency preparedness is not available ³ A national multisectoral multihazard emergency response plan is not available
	A national multisectoral multihazard plan that identifies key measures for strengthening emergency preparedness for priority risks is in place ⁴ . A national multihazard emergency response plan with SOPs for core emergency response coordination functions has been developed within the past two years to respond to emergencies, including PHEICs
	Emergency preparedness measures ² are implemented at national levels by public health, animal health and other relevant sectors, including points of entry and mass gathering events National multisectoral multihazard emergency response plans have been exercised or used in actual response operations in the past two years
	Emergency preparedness measures ² are implemented at national, subnational and local levels by public health, animal health and other relevant sectors Multisectoral multihazard emergency response plans and SOPs are in place at subnational and local levels, as well as at the points of entry; and implemented or tested in the past two years and updated accordingly
	There are dedicated human resources and regular budget funding to support coordination and implementation of emergency preparedness measures by public health, animal health and other relevant sectors Dedicated resources are in place for implementation of multisectoral, multihazard emergency response plans, contingency plans and SOPs at national, subnational and local levels, and are tested, reviewed and updated on a regular basis

1 - There is critical competency in the PVS tool CC II-3: Risk analysis

2 - Emergency response plans should be scalable and flexible to address known and emerging hazards, including disease threats. Contingency plans for response to high priority risks should be developed

3 - Any emergency preparedness measures that are conducted, should be done on an ad hoc basis

4 - Risks are identified and prioritized by strategic emergency risk assessments. Emergency preparedness measures include strategic risk assessments, emergency response plans, contingency plans, training, exercising, surge capacity development, business continuity plan. Plans should be multihazard, multisectoral and multidisciplinary, and interoperable with national multisectoral and multihazard plans. Emergency preparedness could address any risks and not be limited to those associated with biological, chemical and radiological hazards.

Contextual questions: N/A

Technical questions:

R.1.1 Strategic emergency risk assessments conducted and emergency resources identified and mapped

- 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 sectors 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 subnational and local levels? What proportion of subnational or local entities has conducted risk assessments?
 - e. 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?
 - f. How are national risk profiles and resources shared among sectors? Are information technology capacities utilized to support availability, accessibility, analysis, updating, reporting and sharing of risk assessments?
 - g. Are strategic risk assessments used as the basis for emergency preparedness measures?

- 2 Does the country have a national inventory and mapping of the available resources for emergency response?
 - a. Does this mapping address resources and capacities required for response to all types of emergencies, including for potential PHEICs?
 - b. Does the mapping of resources include:
 - i. expertise,
 - ii. staff,
 - iii. logistics,
 - iv. equipment,
 - v. finance, and
 - vi. facilities (e.g. health facilities, laboratories)?
 - c. When was the last mapping of resources conducted? Which sectors participated?
 - e. What is the status of stockpiling with respect to pharmaceuticals, protective equipment and other equipment?
 - d. Are assessments of the safety and functionality of the health facilities for emergencies included in resource mapping?
 - i. What provisions are made with respect to stocks of vaccinations, pre-ordering/licencing/import of drugs and vaccines and protective equipment?

- R.1.2 National multisectoral multihazard emergency preparedness measures, including emergency response plans, are developed, implemented and tested
 - 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 multisectoral multihazard plan include:
 - i. strategic emergency risk assessment,
 - 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 measures to prepare for any mass gathering events?
 - f. Does the plan clearly assign roles and responsibilities for emergency preparedness to specific government units of all relevant sectors and points of entry?
 - g. Are there plans for strengthening emergency preparedness at subnational and local 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?

5 - 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.

- f. Does the plan clearly assign roles and responsibilities for emergency response to specific government units of all relevant sectors and points of entry?
- g. 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)?
- h. Are there emergency or contingency funds readily available to support response by public health, animal health and other relevant sectors?
- i. Does the plan analyse available resources (such as human resources, equipment, facilities) in relation to the need for regular operation mode, for acute emergencies, and protracted crises?
- j. Is a surge plan included in the national multisectoral multihazard response plans for scaling up response operations?
- k. What is the mechanism to address resource gaps? Does the plan include SOPs for deployment of surge capacity?
- l. Is surge capacity available to respond to emergencies, including public health emergencies of national and international concern?
- m. Are there multihazard emergency response plans at subnational and local levels?
- n. 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 local level? What are those procedures and plans?
- o. Does the national emergency response plan include logistics? What resources are available for logistics?
- p. Has the national response plan been implemented in a real event or tested in a simulation exercise? When was the last time it was used? Was the plan updated as a result of an after-action review or other form of evaluation?
- q. Have subnational and local multihazard emergency response plans been implemented in a real event or tested in a simulation exercise? When was the last time these were used? Were plans updated as a result of an after-action review or other form of evaluation?
- r. Have national contingency plans been implemented in a real event or tested in a simulation exercise? When was the last time it was used? Were the plans updated as a result of an after-action review or other form of evaluation?
- s. What are the key findings of the after-action reviews or evaluations of emergency response operation or SWOT (strengths, weaknesses, opportunities, threats analysis) exercise?

References:

- Sendai Framework indicators. PreventionWeb [website] (<http://www.preventionweb.net/drr-framework/sendai-framework-monitor/indicators>), accessed 27 December 2017).
- The Sendai Framework for Disaster Risk Reduction 2015–2030. Geneva: United Nations Office of Disaster Risk Reduction; 2015 (http://www.unisdr.org/files/43291_sendaiframeworkfordrrn.pdf, accessed 27 December 2017).
- A strategic framework for emergency preparedness. Geneva: World Health Organization; 2017 (<http://apps.who.int/iris/bitstream/10665/254883/1/9789241511827-eng.pdf?ua=1>, accessed 28 December 2017).
- 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/emergency_response_preparedness_2015_final.pdf accessed 30 December 2017)

EMERGENCY RESPONSE OPERATIONS

Targets: Countries will have a coordination mechanism, incident management systems, exercise management programmes and public health emergency operation centre (EOC) functioning according to minimum common standards; maintaining trained, functioning, multisectoral rapid response teams, and trained EOC staff capable of activating a coordinated emergency response within 120 minutes of the identification of an emergency.

As measured by: (1) Establishment of an emergency response coordination mechanism or incident management system. (2) Development of national health EOC plans and procedures. (3) Emergency response systems and decision-making have been tested and operating efficiently and effectively.

Desired impact: Effective coordination and improved management of the response to outbreaks and emergencies as evidenced by shorter times from early warning and detection to activation of response plans; implementation of a coordinated multisectoral response across all levels; and smaller numbers of cases, deaths and other health and societal impacts.

Score	Indicators – Emergency response operations			R.2.3 Emergency exercise ⁴ management programme ⁵
	R.2.1 Emergency response coordination ¹	R.2.2 ² Emergency operations centre (EOC) ³ capacities, procedures and plans		
No capacity - 1	An emergency response coordination mechanism is not available	An EOC has not been identified and no EOC plans/procedures are in place		No exercises have been completed in the past five years
Limited capacity - 2	A national health sector emergency response operation point of contact is available 24/7 but there is no formal emergency coordination mechanism	National EOCs or equivalent structures are established on an ad hoc basis in response to emergencies		Table top exercises have been completed in the past five years to test emergency response capabilities and decision making at the national level
Developed capacity - 3	A health sector emergency response coordination mechanism for emergencies including PHEICs (e.g. emergency response committee) is in place	National EOCs or equivalent structures are established on an ad hoc basis in response to emergencies EOCs are not yet capable of activating a coordinated emergency response within 120 minutes of receiving an early warning or information of an emergency requiring EOC activation		A functional exercise has been completed to test response operations capabilities at the national level, or national health response systems have been activated to respond to a major emergency in the past two years
Demonstrated capacity - 4	There are emergency response coordination mechanisms at the subnational and local levels Emergency response coordination mechanism at the national level has been tested and updated in the past two years	National EOCs can be activated within 120 minutes of receiving an early warning or information of an emergency requiring EOC activation EOC plans, activation and functions at the national level have been tested and updated in the past two years EOCs are available at the subnational level with plans and SOPs, resources and staff trained in EOC SOPs		A combination of exercises is conducted at least annually to test emergency response capabilities at national level with the involvement of subnational levels
Sustainable capacity - 5	Emergency response coordination mechanisms at all levels have been tested and updated in the past two years	EOC functions at all levels have been tested and updated regularly EOC operations can be sustained for large scale or concurrent emergencies due to a network of fully functional emergency operations centres and trained staff		A combination of exercises are conducted at least annually to test emergency response capabilities at all levels Following exercises, corrective action plans to update plans and strengthen capacities were developed and implemented

1 - Emergency response coordination mechanisms may employ an incident management system to fulfil the coordination function.

2 - The indicator refers to public health emergency operations and health EOCs for the country.

Note:

There is critical competency in the PVS tool CC II-6: Emergency response.

Contextual questions:

1. During an emergency, is there a process for sharing scientific data and recommendations with policy makers and national leaders?
2. Is there a multisectoral commission or a multidisciplinary emergency coordination department or unit for public health/animal health?
 - a. If yes, does this include security, public health, veterinary, wildlife and other experts?
 - b. Has this team received public communication training?
 - c. How often do these groups meet to discuss cross-cutting issues?
3. How do subnational (intermediate and local) entities manage emergency response activities?
 - a. Is there a role for public health, or is this an emergency management activity?
4. How do localities manage emergency response activities?
 - a. Is there a role for public health or do other entities (such as representatives from national disaster management board) manage it?
5. Is there a hotline that people/clinicians can call for help on handling a disease of unknown origin?
 - a. Is there a comparable system for animal disease support?

Technical questions:**R2.1 Emergency response coordination**

1. Describe scenarios or triggers for activation of emergency response. Are there multiple levels of emergency response activation?
 - a. Who decides the change of level?
 - b. Is there a national point of contact available for 24/7 coverage of emergency operations?
 - c. Is there a national health sector emergency response coordination mechanism, committee or national health EOC?

3 - EOC

- The national health EOCs are networked with health EOCs at subnational and local levels, and are interoperable with EOCs in other sectors, including with the National Disaster Management Office.
 - 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;
 - communications equipment; and
 - staff that are trained and capable of coordinating an emergency response.
 - 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.
 - There are additional trained staff who can support and replace regular EOC staff on a rotational basis.
- 4 - Exercises should test the capacity of the emergency operations systems and staff to coordinate a large response to affect multiple communities, by involving multisectoral coordination and mass gathering events where appropriate.
- 5 - Functional multisectoral exercises should be held on an annual basis except when the country has conducted major emergency response operations which have tested the system in a real event; additional drills, table top exercises and simulations can supplement the functional exercises.

- d. Is there a dedicated coordination mechanism under the national health EOC for activation and coordination of emergency medical teams (EMTs) (such as an EMT Coordination Cell)?
- e. Is there an incident management system in the health sector at the national level?
- f. Are there health sector emergency response coordination mechanisms, committees or health EOCs at subnational levels?
- g. Is there an incident management system in the health sector at the national level? And at subnational levels?
- h. Describe how health sector staff have been trained on emergency operations procedures. Has there been any incident management systems training at national or subnational levels?
- i. How are surge staff for emergency response coordination identified? Is there a roster of staff? Is training available to surge staff in advance of a response? Is there "just in time" training available?

R.2.2 Emergency operations centre (EOC) capacities, procedures and plans

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 incident management system? Do they include the following functions and resources:
 - i. incident command,
 - ii. operations,
 - iii. planning,
 - iv. logistics, and
 - 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 subnational 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 subnational 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.

R.2.3 Emergency exercise management programme

1. Describe health emergency exercises that have been conducted, and any activation of the emergency response operations for real events in the past five years.
 - a. Describe functional exercises that have been completed at national or subnational levels in the past two years.
 - b. Describe table top exercises that have been completed at national or subnational levels in the past two years.
 - c. Describe any emergency response activations at the national level in the past two years.
 - d. Provide a summary of any improvement plans, after-action reports, or lessons learned documents that were completed as a result of these exercises or real emergency response operations. What action has been taken to implement the recommended actions?

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] (http://www.who.int/ihr/eoc_net/en/, accessed 29 November 2017).
- Sendai Framework indicators. PreventionWeb [website] (<http://www.preventionweb.net/drr-framework/sendai-framework-monitor/indicators>, accessed 23 December 2017).
- The Sendai Framework for Disaster Risk Reduction 2015–2030. Geneva: United Nations Office of Disaster Risk Reduction; 2015 (http://www.unisdr.org/files/43291_sendaiframeworkfor15ren.pdf, accessed 27 December 2017).

LINKING PUBLIC HEALTH AND SECURITY AUTHORITIES

Target: Country conducts a rapid, multisectoral response¹ 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 Convention (BTWC) of States Parties, FAO, International Atomic Energy Agency (IAEA), International Criminal Police Organization (INTERPOL), OIE, Organisation for the Prohibition of Chemical Weapons (OPCW), 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.

¹ - Multisectoral collaboration is key to engaging in an effective public health emergency response. Security authorities may include law enforcement, border control officers, defence and/or customs enforcement. Effective multisectoral collaboration should also include food safety inspectors, as well as animal health, radiological safety and chemical safety authorities.

Score	Indicator: Linking public health and security authorities
	R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) linked during a suspect or confirmed biological, chemical or radiological event
No capacity - 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
Limited capacity - 2	Points of contact and triggers for notification and information sharing have been identified and shared between public health, animal health, radiological safety, chemical safety and security authorities to address all hazards
Developed capacity - 3	MoU or other agreement/protocol, that includes at least roles, responsibilities, SOPs and information to be shared, exists between public health and security authorities within the country and has been formally accepted to address all hazards
Demonstrated capacity - 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
Sustainable capacity - 5	Public health and security authorities exchange reports and information on events of joint concern at national, intermediate and local levels on a regular basis using the formal MoU or other agreement/protocol Public health and security authorities engage in a joint training programme to orient, exercise and institutionalize knowledge of the MoU or other agreement related to all hazards

Contextual questions: N/A

Technical questions:

R.3.1 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 local levels?
2. Have trainings been conducted jointly (at an intermediate level (regional) 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 points of entry 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 BTWC? Has the country participated in an exercise, simulation or response in the past year that involves leadership from both public health and security authorities? If yes, describe the exercise, simulation or response.
 - a. 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 (http://www.oie.int/fileadmin/Home/fr/Media_Center/docs/pdf/WHO_OIE_Operational_Framework_Final2.pdf accessed 29 November 2017).
- Terrestrial animal health code. Chapter 3.4 Veterinary legislation. World Organisation for Animal Health; 2016 (http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre_vet_legislation.htm, accessed 29 November 2017).
- 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/en.pdf>, accessed 29 November 2017).
- Treaty on the non-proliferation of nuclear weapons. International Atomic Energy Agency [Information circular] INFCIRC/140, 22 April 1970 (<https://www.iaea.org/sites/default/files/publications/documents/infcircs/1970/infcirc140.pdf>, accessed 29 November 2017).

MEDICAL COUNTERMEASURES AND PERSONNEL DEPLOYMENT

Target: : National framework for: transferring (sending and receiving) medical countermeasures, and public health and medical personnel from international partners during public health emergencies; and procedures for case management of events due to IHR relevant hazards.

As measured by: (1) 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, or a formal exercise or simulation that demonstrates these measures. (2) Evidence of demonstrating application of case management procedures for events due to IHR relevant hazards.

Desired impact: Countries will have the necessary legal and regulatory processes and logistical plans to allow for rapid national or cross-border deployment and receipt of public health and medical personnel during emergencies. Regional (international) collaboration will assist countries in overcoming the legal, logistical and regulatory challenges to deployment of public health and medical personnel from one country to another. Country has developed case management procedures and implemented across the system during health emergencies due to IHR relevant hazards..

Score	Indicators: Medical countermeasures and personnel deployment			R.4.3 Case management procedures implemented for IHR relevant hazards
	R.4.1 System in place for activating and coordinating medical countermeasures during a public health emergency ¹	R.4.2 System in place for activating and coordinating health personnel during a public health emergency	R.4.3 Case management procedures implemented for IHR relevant hazards	
No capacity - 1	No national countermeasures plan has been drafted	No national personnel deployment plan has been drafted	No case management guidelines are available for priority epidemic-prone diseases ²	No case management guidelines are available for priority epidemic-prone diseases
Limited capacity - 2	Plans that outline a system for sending and receiving medical countermeasures during public health emergencies have been drafted	Plans that outline a system for sending and receiving health personnel during public health emergencies have been drafted, including the development of plans for EMTs ³ for national response	Case management guidelines are available for priority epidemic-prone diseases	Case management guidelines are available for priority epidemic-prone diseases
Developed capacity - 3	Table top exercise(s) has been conducted to demonstrate sending or receiving of medical countermeasures during a public health emergency	Table top exercise(s) has been conducted to demonstrate decision making and protocols for sending or receiving health personnel from another country during a public health emergency, and training and equipment is available for national EMTs	Case management guidelines for other IHR relevant hazards ⁴ are available at applicable health system levels and SOPs are available for the management and transport of potentially infectious patients in the community and at points of entry ⁵	Case management guidelines for other IHR relevant hazards ⁴ are available at applicable health system levels and SOPs are available for the management and transport of potentially infectious patients in the community and at points of entry ⁵
Demonstrated capacity - 4	At least one response or formal exercise or simulation within the previous year in which medical countermeasures were sent or received by the country	At least one response or formal exercise or simulation within the previous year in which health personnel were sent or received by the country. Evidence of deployable EMT capacity/capability for national response	Case management, patient referral and transportation, and management and transport of potentially infectious patients are implemented according to guidelines and/or SOPs	Case management, patient referral and transportation, and management and transport of potentially infectious patients are implemented according to guidelines and/or SOPs
Sustainable capacity - 5	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 medical countermeasures and has participated in an exercise or response within the past year to practice deployment or receipt of medical countermeasures	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 health personnel and has participated in an exercise or response within the past year to practice deployment or receipt of health personnel. Country has an internationally deployable EMT as classified by WHO or is in the process of mentorship by WHO	In addition to demonstrated capacity, appropriate staff and resources (as defined by the country) are in place in the management of IHR relevant emergencies	In addition to demonstrated capacity, appropriate staff and resources (as defined by the country) are in place in the management of IHR relevant emergencies

1 - If the country has a stockpile of medical countermeasures, it will not be asked to provide a list or formulary.

2 - For the animal health sector, this information can be found in the country PVS Pathway mission report, under Critical Competency CC II-6: Emergency response

3 - 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.

4 - Nuclear, chemical, zoonotic, food safety, trauma, exacerbation of noncommunicable diseases and mental health conditions.

5 - As specified in Article 57, 2(d) IHR (2005).

Contextual questions: N/A

Technical questions:

R.4.1 System in place for activating and coordinating medical countermeasures during a public health emergency

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. personal protective equipment 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 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.

R.4.2 System in place for activating and coordinating health personnel during 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. Do plans for surge staffing for public health emergency response activations include triggers for requesting personnel from other countries?
 - a. Have training procedures and materials been developed to orient arriving personnel into the organization?
 3. Does the system include other sectors (chemicals, radiation, animal health) or do separate systems exist?
 4. Has the country exercised plans for sending or receiving health personnel within the past year?
 - a. 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 (GOARN)? 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 GOARN? 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 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?

R.4.3 Case management procedures implemented for IHR relevant hazards

1. Availability of case management guidelines for priority diseases and IHR relevant hazards at all health system levels.
2. Availability of SOPs (according to national or international guidelines) for the management and transport of potentially infectious patients at the local level and points of entry.
3. Availability of patient referral and transportation mechanism with adequate resources (designated ambulances, hospitals and SOPs).
4. Availability of appropriate staff trained in case management of IHR-relevant emergencies, including but not limited to the ability to recognize, treat and refer infectious diseases, trauma cases, exacerbation of noncommunicable diseases and others.

Documentation or evidence for level of capability.

- Countermeasures deployment plan
- Personnel deployment plan
- Pandemic preparedness plan (if applicable)

References:

- Classification and minimum standards for foreign (emergency) medical teams in sudden onset disasters. Geneva: World Health Organization; 2013 (http://www.who.int/hac/global_health_cluster/fmt_guidelines_september2013.pdf, accessed 1 December 2017).
- Management of limb injuries during disasters and conflicts. Geneva: World Health Organization; 2017 (https://extranet.who.int/emt/sites/default/files/_A%20Field%20Guide_7.8%20MB.pdf, accessed 27 December 2017).
- Emergency medical teams. World Health Organization [website] (<https://extranet.who.int/emt/page/home>, accessed 1 December 2017).

RISK COMMUNICATION

Target: States Parties use multilevel, multisectoral and multifaceted risk communication 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 preventative 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 and community engagement.

As measured by: (1) Formal government risk communications plans, arrangements and systems in place. (2) Existence of risk communication coordination platform and mechanisms for internal and partner communication. (3) Evidence that public communication unit or team operates efficiently and effectively. (4) Evidence that risk communication units systematically engage populations at community level during emergencies. (5) Existence of a system to gather information on perceptions, risky behaviours and misinformation to analyse public concerns and fears.

Desired impact: Responsible entities effectively communicate, actively listen and respond to concerns of the public through media, social media, mass awareness campaigns, health promotion, social mobilization, stakeholder engagement as well as community 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.

Indicators: Risk communication ^{1,2}	
Score	<p>R.5.1 Risk communication systems for unusual/unexpected events and emergencies</p> <p>R.5.2 Internal and partner coordination for emergency risk communication</p> <p>R.5.3 Public communication for emergencies</p>
No capacity - 1	<p>No formal government risk communication arrangement</p> <p>No coordination platform and mechanisms for internal and partner communication for engaging key national, intermediate, local and international stakeholders (including health care workers)</p> <p>No central unit or locus for public communication, or responsive ad hoc media outreach</p>
Limited capacity - 2	<p>Formal government arrangement including a national multihazard, multisectoral emergency risk communication plan (reviewed within past 24 months) in place and a dedicated core team responsible for this area of work established</p> <p>Some ad hoc communication coordination, such as meetings with some partners and/or irregular information sharing</p> <p>Public communication unit or team exists</p> <p>Government spokesperson identified and trained</p> <p>Procedures for public communication in place</p>
Developed capacity - 3	<p>Significant gaps in capacity in human resources, communication platforms and resources to deal with a large-scale emergency</p> <p>Communication coordination exists but with limited partner and stakeholder engagement (such as health care workers, civil society organizations, private sector and other non-state actors)</p> <p>Proactive public outreach on a mix of platforms (newspapers, radio, television, social media, Internet) as appropriate according to national and local preferences, in relevant national and local languages, and understandable to the population</p> <p>Use of locally relevant technologies for public communication (such as mobile phones)</p>
Demonstrated capacity - 4	<p>Formal government arrangements and systems in place with SOPs and capacity with multisectoral and multistakeholder involvement, but insufficient allocation and alignment of human and financial resources</p> <p>Effective, regular communication coordination with all partners, and their coordination evidenced by a simulation exercise or tested during a real health emergency</p> <p>There is planned communication with continuous engagement and proactive media outreach (including regular media briefings) guided by risk communication best practices, and achieving comprehensive geographical coverage, evidenced by regular coverage of health issues and risks in relevant languages, as well as by media and social media activity during an emergency</p>
Sustainable capacity - 5	<p>Fully operational national system established with reasonably skilled and/or trained personnel and volunteers, and financial resources and arrangements for scale-up as evidenced by a simulation exercise or tested during a real health emergency</p> <p>Effective, regular and inclusive communication coordination with partners and stakeholders including definition of roles, sharing of resources and joint action plans</p> <p>The government, partners and diverse media outlets are engaged in robust and increasingly responsive collaboration to provide health advice, including addressing people's concerns and rumours, and misinformation</p>

1 - Under the IHR capacity assessment framework, only one element of the key components of risk communication – public communication – was assessed. The focus was predominantly on outputs of public communications activities. The revised framework proposed here addresses risk communications outcomes. The framework builds on the existing IHR capacity assessment content, and draws on an evidence-based “logic model” for evaluating emergency risk communication outcomes developed jointly by WHO and Harvard School of Public Health in 2014.

Score	Indicators: Risk communication	
	R.5.4 Communication engagement with affected communities	
No capacity - 1	No arrangement to systematically engage populations at community level for emergencies There may be social mobilization, health promotion or community engagement on health risks for maternal and child health, immunization, malaria, tuberculosis, HIV/AIDS, polio, neglected tropical diseases and other developmental programmes, but they are not systematically used for emergencies	R.5.5 Addressing perceptions, risky behaviours and misinformation No system to gather information on perceptions, risky behaviours and misinformation to analyse public concerns and fears
Limited capacity - 2	Community-level engagement system partially with mapping of existing processes, programmes, partners and stakeholders Social mobilization, behaviour change communication and community engagement included in the national risk communication strategy in the context of health emergencies Some key stakeholders in this domain identified at national and intermediate (provincial/regional) levels	Ad hoc systems in place for gathering information on perceptions, risky behaviours and misinformation but are not systematically used to guide the response
Developed capacity - 3	Stakeholders mapped at intermediate and local levels, and decentralized system (including financial and human resources) in place for community engagement involving community and religious leaders, community-based organizations and other decentralized teams Standard practice of developing information education communication materials with the involvement of community and key stakeholders Community consultation mechanisms in place (such as hotline, surveys)	A systematic approach for gathering information on perceptions, risky behaviours and misinformation exists, but is not systematically used for shaping the response
Demonstrated capacity - 4	Regular briefing, training and engagement of social mobilization and community engagement teams including volunteers Mechanisms to harness scale-up capacity exist and are operational Feedback loop from listening (Domain 5) ³ into community engagement is operational	Mechanisms in place for systematic gathering of information on perceptions, risky behaviours and misinformation, and using such analysis systematically for shaping the response
Sustainable capacity - 5	Communities are equal partners in the risk communication process as evidenced by review of a simulation exercise or tested during a real health emergency	Feedback mechanism to further improve this system and feedback to improve preparedness

2 - Domain 5 (Dynamic listening and rumour management) should be assessed independently as well as in relation to domains 2 (Internal and partner communication and coordination), 3 (Public communication) and 4 (Communication engagement with affected communities).

3 - Domain 5. Partnerships: a) Building broad partnerships for community engagement; b) Working with religious leaders; and c) Working with local journalists and community radio (source: http://www.ghspjournal.org/content/4/4/626?utm_source=trendMD&utm_medium=cpc&utm_campaign=Global_Health%253A_Science_and_Practice_TrendMD_0, accessed 25 December 2017).

Contextual questions: N/A

Technical questions:

R.5.1 Risk communication systems for unusual/unexpected events and emergencies

1. Is there a function for risk communication in the country's national response plan?
2. Are there communications personnel or government departments that informally respond to public information needs during emergencies?
3. Is there permanent or surge staff dedicated to risk communication during emergencies?
4. Are the roles and responsibilities of the risk communication staff articulated in a response plan?
5. Are there significant improvements that could be made in the staffing, platforms, financial resources or other factors to improve communications with public and partners during emergencies?
6. Are there shared communication plans, agreements and/or SOPs between other response agencies, such as public safety, law enforcement, hospitals, emergency response, Red Cross/Crescent and/or government agencies, such as ministries of defence, agriculture, food/drug?
7. Is there a dedicated budget line for communications personnel, materials and activities for emergencies?
8. Are plans tested at least once every two years?
9. Which government entities/agencies have the lead for risk communication for different types and magnitudes of emergencies?
10. Is training for responding to local hazards provided to risk communications personnel?
11. Is there an agreement internal to the agency for clearance of messaging to the public?
12. Is there a dedicated budget for the risk communications system to grow sustainably?

Additional information: Availability of the following related to R.5.1 (documentation)

- National response plans – communication sections
- Organizational chart
- Emergency risk communication staff plans
- Job description for communication staff members
- Shared agreements with response agencies
- Emergency response budget sample
- Various meeting notes
- Exercise plans and results
- Training workshops objectives/results
- Message clearance plan
- Plan alterations
- Mechanism of sharing plan alteration
- Long-term budget plan

R.5.2 Internal and partner communication and coordination for emergency risk communication

1. Is there an informal or formal mechanism to coordinate internal communication within the agency during an emergency?
2. Is there an informal or formal mechanism to coordinate communication among national stakeholders and response agencies during an emergency?
3. Is there an informal or formal mechanism to coordinate communication among international stakeholders and response agencies during an emergency?
4. Have there been incidents where stakeholder/partner agencies have released contradicting information?
5. Have there been instances of delays in the release of information due to a lack of agreement between key partners during an emergency?
6. Is there a formal mechanism to coordinate communication with the hospital and health care sector during an emergency?
7. Is there a formal mechanism to coordinate communication among civil society organizations during an emergency?
8. Is there a formal mechanism to coordinate communication with the private sector during an emergency?
9. Has an exercise for testing communication coordination with partner organizations been conducted?
10. Has there been a response in an actual emergency that tested communication coordination with partner organizations?
11. Is there a system to regularly develop communication response plans together with external partners and stakeholders?
12. Is there a coordinated budget for communications response with external partners and stakeholders?

Additional information: Availability of the following related to R.5.2 (documentation)

- Internal and external coordination events
- Response reports
- News stories during past emergencies
- Plans for communication coordination with external agencies
- After-action reports from exercises or emergency responses
- Agreed upon response plan and coordinated budget plan for emergency communication

R.5.3 Public communication for emergencies

1. Is there a formalized function with a trained public spokesperson?
2. Is there a fast-track process for clearing media and social media products?
3. Is there a communication team dedicated to media and social media outreach that coordinates with partners?
4. Are target audience analyses conducted to better understand audience language, trusted information resources and preferred communication channels?
5. 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?
6. Is information provided in local languages as needed by the audience?
7. Is media research conducted to determine if a message reaches the target audience?
8. Is public health messaging adapted according to the geographic location, language and media preference?

9. Is there any contribution to an evidence base of which communications methods are best enabled for target audiences to change behaviour during emergencies?
10. Is there media and social media monitoring followed by addressing misinformation quickly?

Additional information: Availability of the following related to R.5.3 (documentation)

- Organizational chart
- Media department strategy
- Community outreach plans
- Media response plans
- Communication research protocols and publications (formal/informal)
- Examples of misinformation and methods for handling them

R.5.4 Communication engagement with affected communities

1. Is there a social mobilization, health promotion or community engagement department, team or working group that is used for emergency response?
2. Is the social mobilization, health promotion or community engagement department or team/working group integrated within the overall health response and linked to the media department/team/focal person and coordinated with key partners?
3. Does the social mobilization, health promotion or community engagement department/team/working group have mechanisms to reach out to affected or at-risk populations during health emergencies at national as well as provincial, district and local levels?
4. Is social mobilization, health promotion or community engagement included in the national response plan?
5. Are opportunities for information sharing or training regularly provided between experienced community engagement experts and volunteers or for potential surge capacity to be used during emergencies?
6. Is there an ongoing and functioning feedback loop between at-risk or affected populations and response agencies?
7. Are baseline social data, intelligence and analysis on factors that may increase the population's risk to (or the ability to withstand) the top five hazards in the country (such as mapping of languages, living conditions, religious/cultural practices/trusted channels of communication, influencers) conducted or commissioned?

Additional information: Availability of the following related to R.5.4 (documentation)

- Organizational charts
- Baseline surveys and maps of social data related to increased risk for top five hazards
- Risk assessments that address the most likely local public health threats
- National response plan
- Surge capacity plan
- Data from public health hotline (relevant questions from the public, etc.)
- Community outreach plan
- After-action report from actual emergency or exercise

R.5.5 Addressing perceptions, risky behaviours and misinformation

1. Is there a formal communication function to monitor, detect and address people's perceptions, unfounded beliefs, risky behaviours and misinformation?
2. Is the effectiveness of public outreach methods and/or messages used to address unfounded beliefs or to correct misinformation monitored?
3. Is information on people's perceptions, unfounded beliefs, risky behaviours, and misinformation and strategies to address them regularly shared with other stakeholders?
4. Is communication feedback, including on perceptions and misinformation, taken into consideration so as to shape an effective response?
5. Are communication responses and the ability to address perceptions, risky behaviours and misinformation to identify best practice regularly evaluated?

Additional information: Availability of the following related to R.5.5 (documentation)

- Media response plans
- Data from public health hotline (e.g. relevant questions from the public)
- Knowledge, attitude and practice surveys
- Reports from social scientists and anthropologists involved in the response
- Social media monitoring
- Partner coordination meeting records

IHR RELATED HAZARDS AND POINTS OF ENTRY

POINTS OF ENTRY

Targets: States Parties designate and maintain core capacities at international airports and ports (and where 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) Public health emergency contingency plan for designated points of entry. (2) Evidence confirms 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 points of entry.

Indicators: Points of entry	
Score	PoE.1 Routine capacities established at points of entry
No capacity - 1	No capacity at points of entry for appropriate medical services
Limited capacity - 2	Designated points of entry have access to appropriate medical services including diagnostic facilities for the prompt assessment and care of sick travellers and with adequate staff, equipment and premises (Annex 1B, 1 (a))
Developed capacity - 3	Designated points of entry have developed other routine capacities prescribed in the IHR Annex 1B "1. At all times" in addition to appropriate medical services, such as equipment and personnel for the transport of sick travellers to an appropriate medical facility
Demonstrated capacity - 4	All routine core capacities prescribed in the IHR Annex 1B "1. At all times" are developed and functioning as an all-hazard, multisectoral approach
Sustainable capacity - 5	All routine core capacities prescribed in IHR Annex 1B "1. At all times" are functioning as an all-hazard, multisectoral approach, with evidence of periodic evaluation and continuous improvement
	PoE.2 Effective public health response at points of entry
	Public health emergency contingency plan ¹ for each designated point of entry for responding to public health emergencies occurring at points of entry is not in place or under development.
	Public health emergency contingency plan in place at each designated point of entry for responding to public health emergencies occurring at points of entry, integrated with generic emergency preparedness and response plan of each designated point of entry, involving all relevant sectors and services at points of entry, and developed and disseminated to all key stakeholders
	Public health emergency contingency plans at designated points of entry are integrated into the national emergency response plan and ad hoc measures related to travellers at points of entry (such as referral system, transport) for the safe transfer of sick travellers to appropriate medical facilities, are in place
	Demonstrated capacities ² of applying recommended measures to disinsect, derat, disinfect, decontaminate or otherwise treat baggage, cargo, containers, conveyances, goods or postal parcels. Establishment of regular testing and updating of an all-hazard, multisectoral system of assessment and care of affected animals, probably implemented through arrangements with local veterinary facilities
	Evaluation of effectiveness in responding to public health events at points of entry conducted, and evidence of an existing periodic evaluation and continuous improvement are shared with relevant stakeholders

Contextual questions:

1. How many points of entry (airports, ports, ground-crossings) are there in the country? How many of them are designated? List them by type.
2. Do adequate legislation and/or policies exist for provision of health services at points of entry in the country? Link this question to technical area of National legislation, policy and finance.

Technical questions:

PoE.1 Routine capacities established at points of entry

1. Do the designated points of entry have access to appropriate medical services, including diagnostic facilities for the prompt assessment and care of sick travellers, with adequate staff, equipment and premises (Annex 1B, 1a)?

1 - Or a generic "points of entry" Emergency Preparedness and Response Plan addressing public health emergencies as defined by the IHR.

2 - These capacities would include adopting measures related to travellers at points of entry, such as a referral system and transport for the safe transfer of sick travellers to appropriate medical facilities.

2. Do these points of entry provide access to equipment and personnel for the transport of sick travellers to an appropriate medical facility?
3. Do these points of entry carry out inspection programmes to ensure safe environment at points of entry facilities?
4. Is there evidence of control of vectors and reservoirs in and near points of entry (Annex 1b, Art. 1e)? Are there specific programmes for this?
5. Does the country have trained personnel for the inspection of conveyances available at designated points of entry (Annex 1b, Art. 1c)? If not, is there a mechanism to bring them from outside?

PoE.2 Effective public health response at points of entry

1. Has the country integrated activities concerning points of entry (such as for early detection, assessment, notification, report of events) into national emergency response plans?
2. Is the public health emergency contingency plan for responding to public health emergencies occurring at points of entry integrated with generic emergency preparedness and response plan of each individual point of entry.
 - a. Does it involve relevant sectors and services at points of entry (such as immigration, transportation, security, media)?
 - b. Is it developed and disseminated to all stakeholders?
3. Do the designated points of entry have capacities to apply recommended health measures related to travellers at points of entry (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 points of entry, health authorities and facilities for all designated points of entry)?
4. Do the designated points of entry 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?
5. Has the country evaluated the effectiveness of points of entry in responding to public health events at points of entry? If yes, is it shared with relevant stakeholders and updated regularly?

Documentation or evidence for level of capability.

1. Documented, regularly-updated and tested national guidelines, and SOPs to reflect all relevant technical and operational guidance tools for points of entry in place and disseminated to all relevant sectors including for:
 - a. detection, reporting and response to events related to travel and transport;
 - b. public health measures to be applied at points of entry that may be recommended by the WHO (such as exit/entry screening, isolation, quarantine, contact tracing); and
 - c. application of other public health measures that could affect international travel and transport.
2. Documentation available for all relevant technical and operational guidance for points of entry – Annex 1B, 1e “to provide as far as practicable a programme and trained personnel for the control of vectors and reservoirs in and near points of entry”.

3. Documentation available on, regularly-updated and tested national guidelines and SOPs to reflect all relevant technical and operational guidance tools for points of entry in place and the same disseminated to all relevant sectors including application of 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.
4. Documentation on systematic collection with standardized tools, analysis and dissemination of data on public health events occurring at points of entry, with updated list of priority conditions for notification, baseline data trends, and 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).
5. Documentation of regular receipt of points of entry findings by national surveillance unit is available.

Additional tools:

- 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 (http://www.who.int/ihr/ports_airports/PoE/en/index.html, accessed 28 November 2017).

CHEMICAL EVENTS

Target: States Parties with surveillance and response capacity for chemical risks or events. This requires effective communication and collaboration among the sectors responsible for chemical safety, industries, transportation and safe disposal, animal health and the environment.

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.

Score	Indicators: Chemical events ^{1,2}
	CE.1 Mechanisms established and functioning for detecting³ and responding to chemical events or emergencies
No capacity - 1	No mechanism in place
Limited capacity - 2	Guidelines or manuals on surveillance, assessment and management of chemical events, intoxication and poisoning are available
Developed capacity - 3	Surveillance is in place for chemical events, intoxication and poisonings with laboratory capacity or access to laboratory capacity to confirm priority chemical events
Demonstrated capacity - 4	Timely and systematic information exchange between appropriate chemical units ⁵ , surveillance units and other relevant sectors about urgent chemical events and potential chemical risks and their response
Sustainable capacity - 5	Adequately resourced poison centre(s) ⁶ are in place and the country has a demonstrated ability to respond to chemical emergencies in all regions ⁷
	CE.2 Enabling environment in place for management of chemical events
	National policies, plans or legislation for chemical event surveillance, alert and response do not exist
	National policies, plans or legislation for chemical event surveillance, alert ⁴ and response exist
	A chemical event response plan is in place that defines roles and responsibilities of relevant agencies and takes into account all major hazard sites and facilities
	Functional mechanisms for multisectoral coordination and collaboration to manage chemical events are in place including involvement in international chemical/toxicological networks
	A chemical event response plan has been tested through occurrence of a real event or through simulation exercise and is updated as needed

Contextual questions:

1. Has a national chemicals profile been developed in the past five years? If applicable, describe outcome/provide report.
2. Have chemical risks been assessed for priority chemicals in the past five years, for example in terms of impact on morbidity and mortality?
3. Have there been any major chemical incidents in the past five years?
4. Are any international chemical conventions/agreements ratified/implemented?
 - a. Is the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals in International Trade ratified?
 - b. Is the Stockholm Convention on Persistent Organic Pollutants ratified?
 - c. Is the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal ratified?
 - d. Is the United Nations Economic Commission for Europe Convention on the Transboundary Effects of Industrial Accidents ratified?

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

2 - 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.

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

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

5 - Such as chemical surveillance, environmental monitoring and chemical incident reporting.

6 - The poisons centre should be sufficiently staffed and resourced to provide a robust and reliable 24/7 service. The poisons centre should be well used by the population 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/10665/419666/1/9241544872_eng.pdf, accessed 1 December 2017).

7 - 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 (http://www.who.int/environmental_health_emergencies/publications/Manual_Chemical_Incidents/en/, accessed 1 December 2017)).

- e. Is the International Labour Organization Convention 174 on Prevention of Major Industrial Accidents ratified?
 - f. Is the International Labour Organization Convention 170 on Safety in the Use of Chemicals at Work ratified?
5. Is the country working towards achieving sustainable development goals 3.9 and 12.4 (see also Strategic Approach to International Chemicals Management (SAICM) goal)?^{8,9}

Technical questions:

CE.1 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 incident surveillance?
 - a. Is there an authority/institute/agency with primary responsibility for chemicals and surveillance/monitoring?
 - b. Is there an efficient information flow in chemicals surveillance/monitoring?
 - 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 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 investigation reports produced in chemicals surveillance/monitoring?
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?

CE.2 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:

8 - 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.

9 - The SAICM goal is that by 2020, chemicals will be produced and used in ways that minimize significant adverse impacts on human health and the environment.

- a. hazardous sites registration
 - b. control of hazardous sites (through safety reports and safety management systems)
 - c. on-site emergency plans
 - d. off-site emergency plans
 - e. siting and land use planning
 - f. control of procedures and sites for disposal of hazardous waste
 - g. control of contaminated land, water (drinking and other), crops, foodstuffs
 - h. national and international transport/trade of dangerous goods or substances
 - i. hazardous substances registration
 - j. control of labelling and accompanying safety information for hazardous substances
 - k. inspection/monitoring and enforcement
 - l. public communication
 - m. incident documentation and reporting
 - n. incident investigation
 - o. epidemiological and medical follow-up
 - p. occupational health.
3. Is there a national coordinating body/committee with regard to the assessment and management of chemicals?
 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 safety?
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. points of entry (ports, airports, ground crossings), in particular those designated under the IHR
 - m. transport
 - n. private sector/industry
 - o. poison centre(s)
 - p. national surveillance institute(s) with regard to chemical safety
 - q. reference laboratory(ies) with regard to chemical safety
 - r. reference health care facilities with regard to chemical safety.
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 data bank available at all times (e.g. INCHEM)?

RADIATION EMERGENCIES

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.

Indicators: Radiation emergencies ¹	
Score	RE.1 Mechanisms established and functioning for detecting ² and responding to radiological and nuclear emergencies
No capacity - 1	National policies, strategies or plans for the detection, assessment, and response to radiation emergencies are not established
Limited capacity - 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
Developed capacity - 3	Technical guidelines or SOPs developed, evaluated and updated for the management of radiation emergencies (including risk assessment, reporting, event confirmation and notification, and investigation)
Demonstrated capacity - 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
Sustainable capacity - 5	Mechanism is in place to access ⁷ health facilities with capacity to manage patients of radiation emergencies
	RE.2 Enabling environment in place for management of radiological and nuclear emergencies
	No coordination and communication mechanism between national authorities responsible for radiological and nuclear events with health ministry and/or National IHR Focal Point
	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
	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 ² are established
	Functional coordination ⁴ and communication mechanisms ⁵ exist between relevant national competent authorities responsible for nuclear regulatory control/safety and relevant sectors ⁶
	Radiation emergency response drills and other exercises carried out regularly, including the requesting of international assistance (as needed) and international notification

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?

1 - 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, others).

2 - 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.

3 - Recommended that WHO develop some level of specificity for public health and medical aspects (consistent with the contextual and technical questions) to avoid duplication with other peer review services.

4 - Note that 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.

5 - Information sharing, meetings, SOPs developed for collaborative response, etc.

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

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

Technical questions:

RE.1 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?
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 pentaacetic acid, Prussian blue, potassium iodide, cytokines)?

RE.2 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
 - National IHR Focal Point
 - Hospitals and health care facilities (clinics, laboratories, nursing homes)
 - All levels of public health infrastructure (local, intermediate, national)
 - Food and drinking water safety services
 - Laboratory(ies) for individual monitoring and assessment of radiation exposure in humans
 - Reference health care facilities capable of clinical management of severe radiation injuries and internal contamination.
 - b. Environmental protection
 - National surveillance services for radiological monitoring of the environment.
 - c. Nuclear regulatory and radiation safety authorities
 - 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 International Atomic Energy Agency Response Assistance Network (RANET)

References:

- IAEA safety standards series No. GSR Part 7. 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 28 November 2017).
- 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 28 November 2017).

APPENDIX 1: GLOSSARY

Note: *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 IHR relevant, and refer to foodborne as well as zoonotic diseases and other relevant country-specific public health priorities.*

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 website¹ 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.)

Chemical event. A manifestation of a disease or an occurrence, 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.

¹ - http://www.who.int/ihr/surveillance_response/case_definitions/en/

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 don't 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 (http://www.australiagroup.net/en/human_animal_pathogens.html, accessed 28 August 2016).

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 points of entry. 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 public health emergency of international concern.

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, standard operating procedures, 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.

Event-based surveillance. 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.

Field Epidemiology Training Program

- FETP Basic Level Training is for local health staff and consists of limited classroom hours interspersed throughout as a three-to-five month 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.

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/10665/254741/1/WHO-WHE-CPI-2017.10-eng.pdf?ua=1>, accessed 13 August 2017).

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

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 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;35:783-784).

Indicator-based surveillance. 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 personal protective equipment (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.

International Health Regulations (2005) (IHR or the Regulations). 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 inter-sectoral 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, local and other).

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 (http://www.who.int/topics/occupational_health/en/, accessed 28 November 2017).

Occupational safety and health. The WHO Global Plan of Action (GPA) on Workers' Health (2008–17) and consistent with the ILO 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, accessed 28 November 2017).

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 (<http://www.who.int/features/qa/one-health/en/>, accessed 28 November 2017)

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.

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).

Personal protective equipment. 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.

Public health emergency of international concern (PHEIC). An extraordinary event (as provided 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, subnational 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 simulation exercise 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 30 November 2017).
- 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 animal that normally transports an infectious agent that constitutes a public health risk.
- 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 from vertebrate animals to humans (<http://www.who.int/topics/zoonoses/en>, 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 human exposure to the animal source.

APPENDIX 2: SUMMARY OF CHANGES BETWEEN JEE TOOL FIRST AND SECOND EDITIONS

1. Name of the two technical areas have been changed
 - a. **Real time surveillance to Surveillance**
 - b. **Workforce development to Human resources**
2. Where there are changes in indicators (adding, combining, splitting or moving): “target”, “measured by” and “desired impact” have been updated too (details of indicator changes are reflected below in the column titled “Major changes in V2”)
3. When animal and human health scores are given, instead of the average, the lower score of those two will be taken.
4. **Footnotes and Glossary** are updated to ensure correct interpretation of the tool.

Technical area	JEE tool first edition (V1)	JEE tool second edition (V2)	Major changes in V2	How to interpret ¹
National legislation, policy and financing	<p>P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR</p> <p>P.1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR</p>	<p>P.1.1 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>P.1.2 Financing is available for the implementation of IHR capacities</p> <p>P.1.3 A financing mechanism and funds are available for timely response to public health emergencies</p>	<ol style="list-style-type: none"> 1. Indicator P.1.1 and P.1.2 of V1 is combined to P.1.1 in V2. 2. Two new finance indicators are added P.1.2 and P.1.3 in V2 3. Technical questions are updated accordingly 	<ol style="list-style-type: none"> 1. Score of P.1.1 and P.2.2 of V1 should be averaged and the lower score should be considered as baseline which will reflect indicator P.1.1 of V2
IHR coordination, communication and advocacy	<p>P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR</p>	<p>P.2.1 A functional mechanism established for the coordination and integration of relevant sectors in the implementation of IHR</p>	<ol style="list-style-type: none"> 1. No changes at indicator level 2. Very minor changes in attributes 	<p>No additional interpretation required</p>

¹ - Countries who conducted JEE using first edition of the tool and would follow up the progress using second edition (only). This is not intended to compare countries

Antimicrobial resistance	<p>P.3.1 Antimicrobial resistance (AMR) detection</p> <p>P.3.2 Surveillance of infections caused by AMR pathogens</p> <p>P.3.3 Healthcare-associated infection (HAI) prevention and control programs</p> <p>P.3.4 Antimicrobial stewardship activities</p>	<p>P.3.1 Effective multisectoral coordination on AMR</p> <p>P.3.2 Surveillance of AMR</p> <p>P.3.3 Infection prevention and control</p> <p>P.3.4 Optimize use of antimicrobial medicines in human and animal health and agriculture</p>	<p>1. P.3.1 and P.3.2 of V1 is combined as P.3.2</p> <p>2. New indicator for effective coordination is added as P.3.1 in V2</p> <p>3. Infection prevention and control related indicator is changed and attributes updated in P.3.3 of V2</p> <p>4. P.3.4 of V1 is changed to governance of use of antimicrobials in V2</p>	No additional interpretation required
Zoonotic disease	<p>P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens</p> <p>P.4.2 Veterinary or animal health workforce</p> <p>P.4.3 Mechanisms for responding to infectious zoonoses and potential zoonoses are established and functional</p>	<p>P.4.1 Coordinated surveillance systems in place in the animal health and public health sectors for zoonotic diseases/pathogens identified as joint priorities</p> <p>P.4.2 Mechanisms for responding to infectious and potential zoonotic diseases established and functional</p>	<p>1. Indicator P.4.1 is detailed but output/outcome measure of this indicator remains same</p> <p>2. Indicator P.4.2 is incorporated in indicators of Human resources of V2</p> <p>3. P.4.3 of V1 is same as P.4.2 of V2</p>	<p>1. Use score of P.4.1 and P.4.3 of V1 only</p> <p>2. Workforce related score can be used for Human resources</p>
Food safety	<p>P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination</p>	<p>P.5.1 Surveillance systems in place for the detection and monitoring of foodborne diseases and food contamination</p> <p>P.5.2 Mechanisms are established and functioning for the response and management of food safety emergencies</p>	<p>1. Indicator P.5.1 of V1 is changed to two indicators P.5.1 and P.5.2 in V2</p> <p>2. Attributes and technical questions are updated</p>	No additional interpretation required as P.5.1 of V1 is a combined version of two indicators of V2
Biosafety and biosecurity	<p>P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal, and agriculture facilities</p> <p>P.6.2 Biosafety and biosecurity training and practices</p>	<p>P.6.1 Whole-of-government biosafety and biosecurity system in place for all sectors (including human, animal and agriculture facilities)</p> <p>P.6.2 Biosafety and biosecurity training and practices in all relevant sectors (including human, animal and agriculture)</p>	<p>1. Though indicators look changed, they are just more detailed with no major changes</p> <p>2. Minor changes in attributes only</p>	No additional interpretation required

Immunization	P.7.1 Vaccine coverage (measles) as part of national program P.7.2 National vaccine access and delivery	P.7.1 Vaccine coverage (measles) as part of national programme P.7.2 National vaccine access and delivery	1. No changes in indicators and minor changes in attributes	No additional interpretation required
National laboratory system	D.1.1 Laboratory testing for detection of priority diseases D.1.2 Specimen referral and transport system D.1.3 Effective modern point of care and laboratory based diagnostics D.1.4 Laboratory Quality System	D.1.1 Laboratory testing for detection of priority diseases D.1.2 Specimen referral and transport system D.1.3 Effective national diagnostic network D.1.4 Laboratory quality system	1. Only indicator name of D.1.3 of V1 is changed in D.1.3 of V2 2. Rest of the indicators remain same 3. Attributes are updated 4. Technical questions on D.1.1 has AMR related questions	No additional interpretation required
Surveillance	D.2.1 Indicator and event based surveillance systems D.2.2 Interoperable, interconnected, electronic real-time reporting system D.2.3 Analysis of surveillance data D.2.4 Syndromic surveillance systems	D.2.1 Surveillance systems D.2.2 Use of electronic tools D.2.3 Analysis of surveillance data	1. Indicator D.2.1 and D.2.4 of V1 is combined as D.2.1 in V2 2. Rest of the output/outcome measures of the indicators remain same though there are minor changes in wording 3. Attributes and technical questions are updated accordingly	1. Score of D.2.1 and D.2.4 of V1 should be averaged and the lower score should be considered as baseline which will be reflected as D.2.1 of V2 4. Rest remains same
Reporting	D.3.1 System for efficient reporting to WHO, FAO and OIE D.3.2 Reporting network and protocols in country	D.3.1 System for efficient reporting to FAO, OIE and WHO D.3.2 Reporting network and protocols in country	1. No changes and minor changes in the attributes	No additional interpretation required
Human resources	D.4.1 Human resources are available to implement IHR core capacity requirements D.4.2 Applied epidemiology training program in place such as FETP D.4.3 Workforce Strategy	D.4.1 An up-to-date multisectoral workforce strategy is in place D.4.2 Human resources are available to effectively implement IHR D.4.3. In-service trainings are available D.4.4 FETP or other applied epidemiology training programme is in place	1. A new indicator is added (D.4.3) in V2 2. Workforce indicator D.4.2 of V1 from Zoonotic disease is incorporated in indicators of Human resources of V2 3. D.4.1 of V2 is reflected in D.4.3 of V1 4. D.4.1 of V1 is reflected in D.4.2 of V2 5. D.4.2 of V1 is reflected in D.4.4 of V2	1. Average of total scores of workforce indicators and workforce indicator P.4.2 of Zoonotic disease of V1 and take the lower value 2. Rest remains same

Emergency Preparedness	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented R.1.2 Priority public health risks and resources are mapped and utilized	R.1.1 Strategic emergency risk assessments conducted and emergency resources identified and mapped R.1.2 National multisectoral multihazard emergency preparedness measures, including emergency response plans are developed, implemented and tested	1. Output/outcome measures remain the same 2. Indicators are more elaborate and incorporate risk assessment, multisectoral and multihazard attributes 3. Plans are separated as preparedness plan and response plan	No additional interpretation required
Emergency response operations	R.2.1 Capacity to Activate Emergency Operations R.2.2 Emergency Operations Centre Operating Procedures and Plans R.2.3 Emergency Operations Program R.2.4 Case management procedures are implemented for IHR relevant hazards	R.2.1 Emergency response coordination R.2.2 Emergency operations centre (EOC) capacities, procedures and plans R.2.3 Emergency exercise management programme	1. Case management indicator R.2.4 of V1 is moved to Medical countermeasures and personal deployment R.4.3 of V2 2. R.2.1 and R.2.2 of V1 are combined to form indicator R.2.2 of V2 3. Additional coordination indicator is added as R.2.1 in V2 4. R.2.3 of V1 remains same as R.2.3 of V2 though indicator name is changed	1. Take lower score of average of R.2.1 and R.2.2 of V1 to reflect R.2.2 of V2 2. Remove Case management indicator score 3. Score of R.2.3 remains same
Linking public health and security authorities	R.3.1 Public Health and Security Authorities, (e.g. Law Enforcement, Border Control, Customs) are linked during a suspect or confirmed biological event	R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) linked during a suspect or confirmed biological, chemical or radiological event	1. Remains same but expanded to other IHR relevant hazards and attributes are updated accordingly	No additional interpretation required
Medical countermeasures and personnel deployment	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency R.4.2 System is in place for sending and receiving medical countermeasures during a public health emergency	R.4.1 System in place for activating and coordinating medical countermeasures during a public health emergency R.4.2 System in place for activating and coordinating health personnel during a public health emergency R.4.3 Case management procedures implemented for IHR relevant hazards	1. Both indicators of V1 remain same with minor updates in attributes and technical questions 2. Indicator on case management is brought to this technical area from Emergency response operations, i.e. R.2.4 of V1 is moved here as R.4.3 of V2	1. Take score of case management R.2.4 of V1 2. Rest of the score remains same

Risk communication	R.5.1 Risk Communication Systems (plans, mechanisms, etc.) R.5.2 Internal and Partner Communication and Coordination R.5.3 Public Communication R.5.4 Communication Engagement with Affected Communities R.5.5 Dynamic Listening and Rumour Management	R.5.1 Risk communication systems for unusual/unexpected events and emergencies R.5.2 Internal and partner coordination for emergency risk communication R.5.3 Public communication for emergencies R.5.4 Communication engagement with affected communities R.5.5 Addressing perceptions, risky behaviours and misinformation	1. Output/outcome measures of all these indicators remains same with minimal changes in attributes though indicator names are changed	No additional interpretation required
Points of entry	PoE.1 Routine capacities are established at PoE. PoE.2 Effective Public Health Response at Points of Entry	PoE.1 Routine capacities established at points of entry PoE.2 Effective public health response at points of entry	1. Only attributes are updated	No additional interpretation required
Chemical events	CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies. CE.2 Enabling environment is in place for management of chemical Events	CE.1 Mechanisms established and functioning for detecting and responding to chemical events or emergencies CE.2 Enabling environment in place for management of chemical event	1. Only attributes are updated	No additional interpretation required
Radiation emergencies	RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies. RE.2 Enabling environment is in place for management of Radiation Emergencies	RE.1 Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies RE.2 Enabling environment in place for management of radiological and nuclear emergencies	1. Only changes in indicator: Radiation emergencies in V1 changed to Radiological and nuclear emergencies in V2 2. Attributes are updated	No additional interpretation required



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