

INTERNATIONAL HEALTH REGULATIONS (2005)

CORE CAPACITY WORKBOOK

**A series of exercises to assist the
validation of core capacity
implementation levels**

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Abbreviations

EOC	emergency operations centre
ESR	electron spin resonance
EVD	Ebola virus disease
IHR	International Health Regulations (2005)
INFOSAN	International Food Safety Authorities Network
IPC	infection prevention and control
MEL	master exercise list
NFP	national IHR focal point
PoE	point(s) of entry
RRT	rapid response team
SOP	standard operating procedure(s)
WHO	World Health Organization

Introduction

This workbook provides a set of tabletop exercises and supporting materials that can be used and adapted to assess and evaluate the capacity to respond to public health events. In particular, it is designed as an active tool to support States Parties¹ to validate the implementation of the core capacities required at national, sub-national and community level as required under the International Health Regulations (IHR 2005).^{2,3}

The purpose of the IHR is to prevent, protect against, control, and provide a public health response to the international spread of disease. The process of achieving this objective should be commensurate with and restricted to public health risks, and avoid unnecessary interference with international traffic and trade. In implementing the regulations, countries are called upon to assess and strengthen their national public health structures. Should a public health event occur that may constitute a public health emergency of international concern, countries are expected to interact actively and collectively with the World Health Organization (WHO) for information sharing, risk assessment, and implementation of public health measures and other recommendations.

The globalized world has raised new scientific and organizational challenges. If threats to public health are not managed effectively, they can cause major human suffering and have enormous economic impact. It is critical, therefore, that all countries commit to develop the capacity to prepare for, detect, assess, and respond to public health events of international concern, and are able to contain them at source. The ability to respond to threats to public health security in a coordinated, transparent way requires well-understood, realistic yet flexible plans, policies and procedures that have been validated and practised, and that the responses to actual events have been evaluated.

In order to provide States Parties with a toolkit to validate and monitor the implementation levels of IHR (2005) core capacities, WHO developed this series of tabletop exercise scenarios and supporting materials. This workbook is not intended as a tool to rank the performance of countries; rather it should assist each country to validate and monitor its own progress of core capacity implementation as required by the IHR (2005).

About this workbook

This workbook focuses on the use of tabletop exercises to validate plans, policies and procedures related to the IHR (2005) core capacities. While there are more complex types of exercises, the tabletop exercise format is the most time and cost efficient to review and evaluate progress in implementing core capacities. The materials include a series of IHR-relevant scenarios that can be adapted to validate plans, policies and procedures at any level within a country; questions for facilitators based on the IHR (2005) core capacities; a sample agenda; and an outline for an exercise report. The questions and expected actions for facilitators are generic in the sense that they are not limited to a specific scenario, except for the zoonotic, food safety, chemical and radiological capacities, which are scenario-dependent. The questions are arranged by core capacity and capability level. Based on the plan, the

¹ Once the World Health Assembly adopts a revision of the IHR, all Member States are automatically legally bound by it unless they affirmatively and formally opt out of the new IHR within a specific time period. No Member State rejected or opted out of the latest IHR (2005), although two Member States made reservations. Thus all WHO Member States are States Parties to the IHR (2005).

² International Health Regulations (2005), 2nd ed. Geneva: World Health Organization; 2008 (http://apps.who.int/iris/bitstream/10665/43883/1/9789241580410_eng.pdf).

³ IHR Core Capacity Monitoring Framework: Checklist and Indicators for Monitoring Progress in the Development of IHR Core Capacities in States Parties. Geneva: World Health Organization; 2013 (WHO/HSE/GCR/2013.2; http://apps.who.int/iris/bitstream/10665/84933/1/WHO_HSE_GCR_2013.2_eng.pdf).

participants and the purpose of the exercise, it is up to the exercise manager¹ to determine the most relevant questions for each part of the scenario being used.

The use of tabletop exercises to review, evaluate and strengthen plans, policies and procedures has been well documented as part of the Ebola virus disease outbreak in Africa: from October to December 2014, tabletop simulations were conducted in 15 high priority countries² in Africa. These exercises played a crucial role in identifying gaps in preparedness levels, development of national response plans and in prioritizing activities.

The exercises should be used in conjunction with the Checklist and indicators for monitoring progress in the development of IHR (2005) core capacities in States Parties, and with self-reported country data on IHR implementation, either through the IHR monitoring questionnaire or similar evaluations of existing national capacities.

Guidance and materials from WHO to develop, conduct and evaluate exercises are constantly updated to reflect the needs and goals of Member States and States Parties to the IHR (2005). At any time during the exercise process, feedback or questions about the guidance or materials may be addressed to ihrinfo@who.int.

How to use this workbook

This workbook describes nine scenarios: three relate to a communicable disease, one to a zoonotic and one to a food safety event, and two each to chemical and radiological events. Each scenario has three steps: the emergence of the event, a worsening situation, and moving towards resolution. The scenarios are deliberately brief in order to allow maximum time for discussion and ease of customization.

A set of questions for the facilitators of an exercise is included, covering eight core capacities, points of entry, and four hazards. The acquired capability of countries to achieve each core capacity is reviewed at four levels (foundational; inputs and processes; outputs and outcomes; and additional achievements). An outline of what participants should include in their responses follows each question. When using a scenario, the exercise manager can determine from the functions being validated which questions are relevant and create a master events list (MEL) for use in the conduct and evaluation of the exercise. An annotated template for an MEL is provided in Annex 2. Depending on the plan, the participants and the purpose of the exercise, the questions may apply to one or more areas of the scenario being used. A sample agenda for the conduct of an exercise is provided in Annex 3.

An example of an exercise report, often called the After Action Report, is also provided as Annex 4. This is only an outline, as the purpose of the exercise and the normal means of reporting within an organization or agency will influence the report style.

Adapt exercises to the local situation

In order to provide a meaningful analysis of strengths and opportunities for improvement, any exercise must be geared towards the specific needs and goals of the participants. While this workbook contains a number of exercise scenarios, they can and should be adapted to reflect the local realities.

Adjustments in either the scenario or the expected actions may be needed according to whether the exercise is conducted at community, sub-national or national level. This may mean changing locations used in the scenario, the case numbers, occupations of persons affected, etc. The scenarios can also be expanded if more time is available than the suggested one half day.

¹ The exercise manager is the person in charge of the exercise; a facilitator may also be used to facilitate a tabletop exercise.

² Benin, Burkina Faso, Cameroon, Central African Republic, Côte d'Ivoire, Ethiopia, Gambia, Ghana, Guinea-Bissau, Mali, Mauritania, Niger, Senegal, South Sudan and Togo.

In addition, the questions that accompany each scenario can and should be adapted and expanded to include local plans, policies and procedures. Again, there may be different expected actions depending on the level at which the exercise is conducted, and the documentation used in the exercise (the MEL) should be modified accordingly. For evaluation purposes, the questions posed to participants should be aligned with the actions expected of them, and should be expanded or amended to reflect the plan, policy or procedure under review and any specific expectations at the relevant administrative level.

Start small, build on success

Once a decision to conduct an exercise has been made, it becomes quickly apparent that not all elements of a plan can be validated in a single exercise. It is best to start with a simple exercise, and then develop and conduct broader and/or more complex exercises rather than embarking on an ambitious exercise and risk failure.

Several exercises may be needed in order to cover all relevant areas of a plan. For example, participant availability may not allow the validation of response and risk communications in a single exercise, and each element may thus be the focus of separate exercises. An advantage of organizing the questions by core capacity is that related questions can be asked over the course of different exercises within the same scenario.

Using the core capacity capability levels

The IHR (2005) core capacities are broken down into distinct components with examples, or indicators, of what implementation of the component actually means at country level. The indicators are assigned a capability level ranging from <1 (considered foundational) to level 3, which indicates additional achievements when all other elements of the component have been attained.

Core capacity 3: Surveillance

Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
Indicator based ¹ , surveillance (also referred to as structured surveillance, routine surveillance, or surveillance for defined conditions)	Indicator based surveillance ² includes an early warning ³ function for the early detection of a public health event	A list of priority diseases ⁴ , conditions and case definitions for surveillance is available. There is a specific unit designated for surveillance of public health risks.	Surveillance data on epidemic prone and priority diseases are analysed at least weekly at national and sub-national levels. Baseline estimates, trends and thresholds for alert and action are defined for the community/primary response level for priority diseases/events.	Timely ⁵ reporting from at least 80% of all reporting units takes place. Deviations or values exceeding thresholds are detected and used for action at the primary response level ⁶ (Annex 1A Article 4a). Regular ⁷ feedback ⁸ of surveillance results is disseminated to all levels and other relevant stakeholders.	Evaluation of the early warning function of the indicator based surveillance and country experiences, findings and lessons learnt shared with the global community.

The questions for facilitators, as well as the expected actions for use in evaluation, are based on the ascending requirements of the capability levels. In order to achieve level 1, the requirements of the foundational level need to be met. To achieve level 2, both the foundational and level 1 requirements must be met. Each set of questions for the country-level indicators is arranged in the same way; and the facilitator should ask them in the order of the capability level. Country assessments, such as self-reported data on IHR implementation through the IHR monitoring questionnaire, can give the exercise manager an estimation of the capability level within the country, which can then be validated through the exercise.

The full table of core capacities is provided in Annex 1.

Special note on core capacities 1 and 7

The questions and expected actions for core capacity 1 (National legislation, policy and financing) and core capacity 7 (Human resources) should be addressed and included for all participants regardless of the scope or focus of the exercise. Staff, financing, and authority to take action are required across all core capacities and all aspects of a response to a public health threat. Moreover, valuable information on actual human resource capacity and the adequacy of legislation, procedures and policies can be gained from including these core capacity questions and expected actions in any exercise.

Scenarios to validate IHR (2005) core capacities

Communicable disease I

Scenario part 1

Nine children in a large city have been hospitalized in the past week with rash, headaches, vomiting and respiratory problems. Three of them have also suffered paralysis and encephalitis, and some are suffering additional complications such as partial paralysis. Local and national media are speculating that this is the start of a polio outbreak.

The children all attend the same school, but are not in the same class. Parents are refusing to send their children to school and the community is becoming hostile towards immigrants in the area, blaming them for importing the disease.

Samples taken from the children have tested negative for polio at the national laboratory. Further samples of blood, saliva and cerebrospinal fluid are currently undergoing testing.

Scenario part 2

It is one week since the initial report of children falling ill. During this time, an additional 38 children from the same school have been hospitalized with the same symptoms. Public outrage is high, with demands to close the school and fire the staff.

In spite of announcements that the children do not have polio, the rumour of a polio outbreak persists.

Blood samples from the first cases have all tested positive for Enterovirus (EV) 71, C4a.¹

Scenario part 3

Following a temporary closure of the school for disinfection and to limit interaction among students, two weeks have passed with no new cases.

Rumours persist of a polio outbreak that was covered up by the Government or, worse, used as a tool to increase participation in routine immunization. A prominent celebrity in the country is on TV and radio saying that the disease was caused by additives in vaccines in the routine immunization programme, and urging parents to stop vaccinating their children.

¹ C4a is a relatively new strain of EV71. Outbreaks of EV71 occur with relative frequency causing hand, foot, and mouth disease, but C4a can cause more serious illness such as inflammation of the brain and spinal cord, and can also affect the heart and lungs. The virus is transmitted by faecal contact and through droplet infection. Isolation and hand hygiene are effective in limiting spread.

Communicable disease II

This scenario is based on a fictional disease that does not exist in animals or humans. The disease was invented purely to facilitate discussion during the exercise.

Scenario background

Novel haemorrhagic fever (NHF) is a disease recently identified by WHO and the World Organisation for Animal Health. Originally identified as causing wasting in sheep and cattle, the disease has recently been shown to infect humans as well.

In humans, the first signs of infection are fever, weakness and extreme muscle and eye pain. Severe cases deteriorate rapidly, with multiple organ failure and severe bleeding from nose, eyes and mouth, followed by death.

In the past two months, many countries in the region have detected small clusters of cases. The specific mode of transmission from animals to humans is yet to be determined. Meat samples taken from the homes of cases have shown high concentrations of NHF virus.

Scenario part 1

It is the beginning of the influenza season.

A meat vendor near your country's most used point of entry (PoE) reported to the emergency department of the local hospital three weeks ago with muscle pain and fever. He was sent home with instructions to rest and take Ibuprofen. He died at home two days later following continued fever and bleeding from his mouth and nose. His funeral was attended by a large number of people, including relatives living in two neighbouring countries.

The meat vendor's wife reported to their private doctor last week with fever and muscle pain. She has since recovered, although their son is now in hospital with fever and difficulty in breathing.

Rumours are in the media of several incidents in the surrounding area of sheep and cattle refusing to eat and then dying. Other countries in the vicinity with which you trade have also reported abnormal deaths in sheep and cattle.

Scenario part 2

Five weeks have passed. According to WHO, NHF is transmitted from person to person through body fluids such as blood and saliva. Individuals can also be infected through eating meat containing the virus, which has not been thoroughly cooked. Neighbouring countries are also reporting an increasing number of cases, approximately 2% of which are proving fatal.

Clusters of illness in your country have been detected based on the WHO case definition below. Three combinations of clinical, epidemiological and laboratory criteria can define a probable case:

- A person with a febrile acute respiratory illness with clinical, radiological or histopathological evidence of pulmonary parenchymal disease (e.g. pneumonia or acute respiratory distress syndrome), myalgia and fatigue
AND
testing for NHF is unavailable or negative on a single inadequate specimen
AND
the patient has a direct epidemiological link with a confirmed NHF case;
- A person with a febrile acute respiratory illness with clinical, radiological or histopathological evidence of pulmonary parenchymal disease (e.g. pneumonia or acute respiratory distress syndrome), myalgia and fatigue
AND
an inconclusive NHF laboratory test (that is, a positive screening test without confirmation) or

testing for NHF is unavailable

AND

a resident of, or traveller in a country where NHF was believed to be circulating in the 14 days before onset of illness;

- A person with an acute febrile respiratory illness of any severity

AND

an inconclusive NHF laboratory test (that is, a positive screening test without confirmation) or testing for NHF is unavailable

AND

the patient has a direct epidemiological link with a confirmed NHF case.

A rapid field diagnostic test for the virus in humans has been developed, although it is in limited supply. There is no vaccine for animals or humans and only supportive treatment for humans (hydration and pain relief).

As it is currently influenza season, there is concern that people who may be infected with NHF are not seeking treatment immediately, thinking they have influenza. Virtually all the fatal cases reported so far have been individuals who did not seek treatment or who reported to a medical facility more than 3 days after the onset of symptoms.

Scenario part 3

It is now six months after the initial case in your country. Several unaffected countries have banned the import of any animal products from NHF-affected countries.

A vaccine for NHF has been developed for animals, but there is as yet none for humans. The number of cases detected in your country is on the decline; however awareness of symptoms of NHF infection needs to be maintained, especially until vaccination in vulnerable animal populations is widespread.

Initial studies show that people who recover become immune from future infection of the same strain of the virus.

Communicable disease III

The scenario presupposes an imported case, although countries may use a local index case. The chaotic environment developing in part 3 opens up debate of what may or may not be needed to stop the disease. This part deliberately avoids mentioning the role of stakeholders such as the community, local and international partners and donors, line ministries, etc. During the exercises, these should be mentioned by participants.

Scenario background

WHO has recently confirmed the existence of Ebola virus disease (EVD) in a few clusters in one West African country, cautioning that the disease could spread if strict control measures are violated. Health workers should therefore be alert and properly evaluate any suspected patients, including details of their travel history. Community members are encouraged to contact their national authority's helpline if they have any related information or concerns.

Scenario part 1

An inhabitant from the second largest city in your country informs the Emergency Operations Centre (EOC) helpline that a cousin, who recently arrived from the West African country, is sick with fever, weakness, severe headache, vomiting and, since yesterday, bloody diarrhoea. She has been attending the local district hospital. On the same day, the helpline receives a call from a lady who is worried about her husband who is feverish, having returned home a few days ago from a visit to his aunt (who happens to be the cousin mentioned above).

The local media have picked up on the two cases and, following a radio report, the population is also informed. The mayor has requested the Director of Public Health to investigate and report on the situation.

Scenario part 2

Ten days have now passed since the EOC was informed. Two health-care workers at the district hospital – a doctor and a nurse – who attended the first patient (the cousin) have died and laboratory results from post-mortem swabs confirmed EVD infection. Several health workers suspected of having contracted the virus are now fearful, along with the many people who may have come into contact with them.

Due to concerns of infection and the safety of their families, most health workers are refusing to report for work at the Ebola Treatment Centre.

Scenario part 3

Four months have passed since the first case was reported. There has been a steady increase in the number of cases and deaths from confirmed EVD infection throughout the country. The many national treatment centres are overwhelmed with confirmed and suspected cases.

The Government has been accused of a slow and inadequate response, and of interfering with traditional and religious practices. Sporadic unrest is reported, and a state of emergency with restricted movement after dark has been declared in some parts of the country. Some food markets and shops have been closed and there is widespread fear, including of food shortages. It is clear that the initial containment plan has failed and additional measures have to be implemented.

Zoonotic disease

Scenario part 1

In the past few weeks, the veterinary service in your country has been receiving a high number of reports of cattle, and now sheep, falling ill and dying. Symptoms include vomiting, diarrhoea, and abortion in pregnant animals. Postmortem examination reveals an enlarged and discoloured liver, haemorrhaging and enlarged lymph nodes.

Scenario part 2

Investigation into the deaths finds that they began after an animal owner introduced six new sheep into his flock. The sheep interact freely with cattle in the grazing area. Laboratory tests confirm Rift Valley fever. Two farm workers who disposed of dead animals are suffering from stiffness, fever, vomiting and sensitivity to light.

Scenario part 3

An animal vaccination programme underway is meeting resistance from farmers, who do not see the need to vaccinate their healthy animals.

Three more people who have been in contact with livestock have died.

Food safety

Scenario part 1

Between 1st and 8th of this month, three individuals in a large town and four in the capital city had severe diarrhoea and vomiting and sought medical attention. Stool samples sent to laboratories isolated *Escherichia coli* O156:H7.

A review of surveillance data for the past three months shows a spike in the number of reported infections. Above average numbers of cases are being reported in several areas around the country: 45 cases identified in 12 different municipalities.

Some areas report a lack of sufficient human resources to perform investigations and interviews.

Scenario part 2

A list of recently consumed food common among infected cases includes an imported cheese product that is sold in most stores. Ten packages of this cheese were collected from case households, all of which had been opened and partially consumed. Eight packages were positive, all with a lot number ending in 0089.

There are currently 183 reported cases, half of whom have been hospitalized, 15 have developed haemolytic uremic syndrome, and one has died. Further testing of samples collected nationwide shows that 85% of the product from lot number 0089 is contaminated. Other lots all test negative.

Consumer groups are angry at what they see as slow action from the Government; the media have taken the side of the public, criticizing every action taken.

Scenario part 3

Following intensive efforts to remove all affected product from the market, cases decline and are back to or below expected levels in all areas of the country.

There is still public anxiety about the safety of the product. The media remain critical of the Government response.

Chemical event I

Scenario part 1

Multiple small clusters of illness have occurred in your country during the past week. All clusters are family based. Symptoms appear rapidly and include cyanosis, confusion, weakness and vomiting. Some patients have recovered completely; more severe cases are recovering with oxygen therapy. There have been no fatalities, but this has not stopped the public from being extremely worried.

Reports are beginning to appear in the media of a mystery illness attacking families.

Scenario part 2

Clusters of cases continue to appear throughout the country, usually in family groups. Blood tests in all initial cases confirm methaemoglobinaemia.

All cases report that symptoms occur during or shortly after a meal. Investigation of foods consumed before falling ill shows that all affected homes contain a bag labelled Sailor brand refined iodized table salt. Analysis shows the product to contain 50% sodium nitrite.

Scenario part 3

Following the product recall and public messaging, no new cases have been reported in the past month.

There is distrust of the authorities among the public, and periodic rumours are spreading in the social media that additional contaminated products are for sale in stores and markets.

Chemical event II

Scenario part 1

A report is received from a remote health centre stating that 20 children from different families have become ill in the past two weeks. The children are aged between 1 and 5. All children are reported to be vomiting, most have abdominal pain, and some are experiencing drowsiness. Several have had intermittent fever.

In the past 48 hours, an additional 5 children from the same area, in the same age group, are reported to be suffering from jerking of the arms and legs that lasts for several minutes.

Rumours are spreading of a strange new disease in the area.

Scenario part 2

In the past few days in another part of the country, 17 children, also in the 15 age group, are reported to be suffering from similar symptoms to the first group.

Of the total 42 children, 7 have died. Rumours are wild, both in the street and on social media, varying from polio to a mysterious communicable disease.

Blood samples have been sent to the national laboratory. Testing for bacterial meningitis on samples from four of the victims from two different parts of the country has proven negative. All samples show moderate to severe anaemia. Consequently, the level of lead in the children's blood was tested, which was found to be 3–6 times the WHO/CDC (US Centers for Disease Control and Prevention) norm.

Scenario part 3

Examination of goods from the homes and schools of the affected children determined the source of the lead exposure to be imported toys from the same company, all using the same popular cartoon character.

Parents and consumer groups are outraged. Rumours that other goods are unsafe are circulating on social and conventional media sources. The press is demanding answers from the Government as to how such dangerous products can enter the country.

Radiological event I

Scenario part 1

Random screening of goods at a PoE detects elevated levels of gamma radiation in imported powdered milk in excess of Codex Alimentarius standards.

An employee at the PoE informs a friend and prominent blogger, who posts the information on her website and twitter feed. Several other social media sites are saying that radioactive powdered milk is for sale on the shelves.

Scenario part 2

Samples of powdered milk taken from shop shelves in three different areas of the country show varying levels of radiation, all in excess of Codex standards.

Two other countries in the region report above Codex threshold levels of gamma radiation in the same brand of powdered milk.

Samples taken for isotope identification from the first detected shipment confirm the presence of caesium 137. Additional materials from the same conveyance have also shown excess levels of gamma radiation. The source is believed to be a large quantity of buttons and belt buckles made from recycled scrap metal.

Scenario part 3

Increased testing of powdered milk over the past month has identified no further contaminated product. However, as the source of the radiation was not the contaminated food product, but metal goods shipped in the same conveyance, the public is dubious at the Government's ability to detect radiological threats in any product entering the country.

Radiological event II

Scenario part 1

A market vendor who sells cooking utensils reports to a health-care centre with weakness, cough, headache and slight fever. A blood test shows a low level of white blood cells, which could have been caused by an antibiotic that the vendor had previously taken for a periodontal condition. He has a rash on both hands, with small purple lesions. His wife, who works with him, has the same rash and has been feeling a bit tired lately, but is still able to sell their goods. The vendor is sent home with a preliminary diagnosis of influenza.

Later that day, the same health-care worker sees a restaurant employee with severe headache, fever, and disorientation. He also has what appears to be a rash of reddish purple lesions on his right hand. He fell ill about two hours after arriving at work. Blood tests show a severely low white blood cell count.

The health-care worker is concerned that two patients have presented with a rash and low white cell counts on the same day. He informs his superiors who notify the public health authorities.

Scenario part 2

During the week following the market vendor and restaurant worker reporting for care, the same health-care centre has seen multiple patients with unexplained redness and itching of the hands. Some have reported headache and fever. All patients are restaurant workers or butchers. Blood tests show decreased white blood cell counts to varying degrees.

Investigation teams sent to the homes and workplaces of the cases find that no family members are affected, with the exception of the market vendor's wife, who now also has purple lesions on her hands, fever and headache. Co-workers and contacts of the restaurant workers are showing no symptoms.

Since the wife of the market vendor is the only family member of a patient who has become ill, an environmental investigation is made of their home, shop and storage locations. During the investigation of the shop, higher than expected levels of gamma radiation are detected, with the highest levels emitting from a recent shipment of knives. The investigation team checks the knives used by the other patients and finds them to have similar dangerous levels of radiation.

Scenario part 3

The discovery of the radioactive knives is major national news. Their origin is traced to a manufacturer in a country that is a major trade partner. The manufacturer made the knives from recycled metal purchased from a company that also treats medical imaging waste.

Consumer groups are outraged. Political groups are using the situation in their campaigns for upcoming elections. The media are portraying the Government as unable to prevent the import of dangerous goods.

Questions for facilitators

It is important that, when using an exercise to validate IHR (2005) core capacity implementation, the requirements for the previous capability level(s) are already in place. The facilitator may therefore need to rephrase a question or ask participants to elaborate to ensure that this is the case. The facilitator may also ask participants to justify answers that are too vague to meet the objectives of the exercise.

Core capacity 1: National legislation, policy and financing

(See Annex 1, p. 31 for a detailed summary of the implementation levels of this core capacity)

QUESTION

Is current legislation sufficient to facilitate activities required under IHR (2005) in this situation, e.g. surveillance, response, communication with WHO and other authorities? (For the purposes of this workbook, legislation includes standards, guidelines, regulations and all other binding policies.)

EXPECTED RESPONSES

- Capability level 1: An assessment of legislation relative to IHR implementation has been made.
- Capability level 2: Recommendations from the assessment have been implemented.
- Capability level 3: Elements of national IHR-related legislation have been published.

QUESTION

Is there sufficient legislation for the national IHR focal point (NFP) to carry out his/her functions in this situation?

EXPECTED RESPONSES

- Capability level 1: A review of national policies to facilitate NFP functions has been carried out.
- Capability level 2: Recommendations of this review have been implemented.
- Capability level 3: Relevant elements of the revised legislation have been published.

QUESTION

Is funding available for the NFP to carry out core functions (e.g. office, mobile phone, advocacy)?

EXPECTED RESPONSES

- Capability level <1: Funding is available.
- Capability level 1: Funding is available for core capacities, relevant hazards and points of entry.
- Capability level 2: IHR (2005) core capacities have been strengthened at the sub-national and community levels during the past 12 months.
- Capability level 3: Resources are committed to meet IHR requirements beyond the country's borders.

Core capacity 2: Coordination and NFP communications

(See Annex 1, p. 33 for a detailed summary of the implementation levels of this core capacity)

QUESTION

Is a functional mechanism in place to coordinate activities surrounding this event (or at least the IHR-related aspects such as detection, response, and communication)?

EXPECTED RESPONSES

- Capability level <1: There is coordination with relevant ministries on events that fall under the IHR (2005).
- Capability level 1: There are national level operating procedures for coordination between the NFP and other sectors. A multisectoral committee or task force also addresses IHR (2005) requirements for surveillance and response.
- Capability level 2: Multisectoral coordination mechanisms are regularly tested through exercises or actual events, and procedures are updated accordingly.
- Capability level 3: Annual updates on the status of IHR implementation are conducted with all relevant stakeholders. An action plan is developed to incorporate lessons identified in coordination and communication mechanisms.

QUESTION

Can the NFP fully function as required (e.g. to notify WHO, communicate updates, share information on the IHR Event Information Site)?

EXPECTED RESPONSES

- Capability level <1: The NFP is established and national stakeholders responsible for IHR implementation have been identified.
- Capability level 1: Information on NFP obligations is provided to national authorities and stakeholders. The roles and responsibilities of relevant authorities are identified and disseminated. The IHR Event Information Site is used as a resource.
- Capability level 2: WHO is provided with up-to-date contact information for the NFP. Plans to sensitize stakeholders on their role under IHR (2005) have been implemented.
- Capability level 3: An active IHR website is established. Functions of the NFP have been evaluated for effectiveness (empowerment, timeliness, transparency, etc.).

Core capacity 3: Surveillance

(See Annex 1, p. 35 for a detailed summary of the implementation levels of this core capacity)

Indicator-based surveillance

QUESTION

Is there an early warning function in place that would detect this event?

EXPECTED RESPONSES

- Capability level <1: There is a list of priority diseases and conditions with case definitions. A specific unit is designated for surveillance.
- Capability level 1: Surveillance data on epidemic-prone and priority diseases are analysed at least weekly at national and sub-national levels. Baseline estimates, trends and thresholds for alert and action are defined at community level for primary events.
- Capability level 2: Timely reporting is received from at least 80% of units. Values exceeding thresholds are used for action at the primary response level. Regular feedback of surveillance results is disseminated to all levels and relevant stakeholders.
- Capability level 3: Evaluation of early warnings and experiences are shared with the global community.

Event-based surveillance

QUESTION

Is event-based surveillance in place to detect cases related to this event? What if WHO requests the verification of an event?

EXPECTED RESPONSES

- Capability level <1: Units responsible for event-based surveillance have been identified. The decision instrument in IHR (2005) Annex 2 is used to determine whether WHO should be notified.
- Capability level 1: Standard operating procedures (SOP) are in place for event-based surveillance. Information sources for public health events and risks are identified. Systems are in place at national and/or sub-national level to capture public health events from a variety of sources. All events that meet notification criteria under IHR (2005) Annex 2 are notified to WHO within 24 hours of conducting a risk assessment.
- Capability level 2: Community leaders and others are sensitized to, and actively engaged in reporting unusual events. Community-level reporting is evaluated and procedures updated as needed. All reports of urgent events are assessed within 48 hours. The NFP responds to all verification requests from WHO within 24 hours. Use of the decision instrument is periodically reviewed and decision-making procedures are updated based on lessons learnt.
- Capability level 3: Country expertise and experiences in event-based surveillance are documented and shared with the global community. Arrangements exist with neighbouring countries to share data on surveillance and control threats to public health. Experiences on use of the decision instrument are documented and shared globally.

Core capacity 4: Response

(See Annex 1, p. 37 for a detailed summary of the implementation levels of this core capacity)

QUESTION

How should this event be handled?

EXPECTED RESPONSES

Capability level <1: Resources for rapid response are accessible.

Capability level 1: Procedures are established for command, control and communications during emergency response operations. Procedures have been implemented in a real event or exercise in the past 12 months. Staff (including rapid response team (RRT) members) are trained in specimen collection and transport. There are guidelines for RRT deployment in events that may be a threat to public health.

Capability level 2: Response management procedures are evaluated and updated following a real or simulated event. These evaluations include timeliness and quality. RRTs can be deployed within 48 from the first report of an urgent event.

Capability level 3: A functional, dedicated command and control operations centre is in place. Assistance is offered to other States Parties to develop response capacity or implement control procedures.

QUESTION

How will health authorities manage suspected cases during this event (referral hospitals, transport of patients, specimens, etc.)?

EXPECTED RESPONSES

Capability level <1: Case management procedures are implemented for IHR-relevant hazards.

Capability level 1: Case management guidelines for priority diseases and IHR-relevant hazards are available at relevant health system levels. SOPs are available for the management and transport of potentially infectious patients in the community and at PoE.

Capability level 2: Patient referral and transportation systems are implemented according to national or international guidelines. Appropriate staff are trained in the management of relevant IHR emergencies.

Capability level 3: Country experiences on case management of major events are published and shared with the global community.

QUESTION

Which infection control measures should be implemented in this situation? (Different responses may apply to each segment of the scenario.)

EXPECTED RESPONSES

Capability level <1: Responsibility is assigned for surveillance of health-care associated infections within the country, as well as for antimicrobial resistance (if applicable).

Capability level 1: A national Infection Prevention and Control (IPC) plan is enacted. SOPs, guidelines and protocols are available to all hospitals. All tertiary hospitals have designated areas and procedures to care for persons requiring specific isolation precautions. Norms or guidelines exist to protect health-care workers from associated infections.

Capability level 2: IPC plans are implemented nationwide. Surveillance within high-risk groups, including health-care workers, is established. Qualified IPC professionals are in

place at all tertiary hospitals. A monitoring system for antimicrobial resistance is established (if applicable).

Capability level 3: IPC measures and their effectiveness are regularly evaluated and published. A national programme to protect health-care workers is implemented. A functional monitoring system for antimicrobial resistance is implemented and data on magnitude and trends are available (if applicable).

QUESTION

How would necessary disinfection and/or vector control measures be implemented in this situation?
How would waste from the response activities and the care of patients be managed?

EXPECTED RESPONSES

Capability level <1: There is an up-to-date inventory of material available for disinfection and/or vector control.

Capability level 1: Essential materials for disinfection and/or vector control are available at relevant sites. A safe disposal policy and procedures for medical and non-medical waste are established.

Capability level 2: Capability is established for chemical decontamination to address the main chemical risks. Decontamination capabilities are established for radiological and nuclear hazards (if relevant to the country situation).

Capability level 3: Assistance is offered to other States Parties to develop disinfection and decontamination policies.

Core capacity 5: Preparedness

(See Annex 1, p. 40 for a detailed summary of the implementation levels of this core capacity)

QUESTION

What preparedness plan should be used to direct the response to and mobilize resources for this event?

EXPECTED RESPONSES

- Capability level <1: An assessment of the ability of existing national structures to meet core capacity requirements has been conducted, and a national plan has been developed.
- Capability level 1: IHR-related hazards and PoE are incorporated into national public health emergency plans. Procedures are in place to reallocate or mobilize resources from national and sub-national levels to support action at the community/primary response level. Surge capacity to respond to public health emergencies is available.
- Capability level 2: The national public health emergency response plan(s) has been implemented /tested in an actual or simulated emergency and updated as needed. Procedures to reallocate or mobilize resources to support the community/primary response level have been implemented. Surge capacity to respond to public health emergencies has been tested through an exercise or actual event (e.g. as part of the response plans).
- Capability level 3: Country experiences and findings on emergency response and on mobilizing surge capacity are documented and shared with the global community. Procedures, plans or strategies to reallocate or mobilize resources from national and sub-national levels to support action at the community/primary response level have been reviewed and updated as needed.

QUESTION

Has risk and resource mapping for this type of event been conducted? Would this event be a priority risk? Are experts identified that can respond to this event?

EXPECTED RESPONSES

- Capability level <1: A directory of experts in health and other relevant sectors to support and respond to IHR-related hazards is available.
- Capability level 1: A national risk assessment has been conducted to identify potential “urgent public health events” and the most likely sources of these events. Plans for management and distribution of national stockpiles are in place (if relevant).
- Capability level 2: National resources have been mapped for IHR-relevant hazards and priority risks. National profiles on risks and resources are developed. Stockpiles (critical stock levels) to respond to priority biological, chemical and radiological events and other emergencies are accessible (e.g. personal protective equipment, medication).
- Capability level 3: The national risk profile is assessed regularly to accommodate emerging threats. National resources for priority risks are also assessed regularly to accommodate emerging threats. The country contributes to international stockpiles.

Core capacity 6: Risk communication

(See Annex 1, p. 42 for a detailed summary of the implementation levels of this core capacity)

QUESTION

What risk communication activities should be taking place and what mechanisms should be used to develop and distribute messages? (This is a valid question for each part of any scenario.)

EXPECTED RESPONSES

Capability level <1: Risk communication partners and stakeholders have been identified.

Capability level 1: A risk communication plan has been developed. Policies, SOPs or guidelines are developed on the clearance and release of information during a public health emergency. A regularly updated platform to disseminate information (e.g. a website) is accessible to the media and the public. Accessible and relevant information, education and communication materials are tailored to the needs of the population.

Capability level 2: The risk communication plan has been implemented or tested through an actual emergency or simulation exercise and updated accordingly within the past 12 months. Evaluation of risk communications for timeliness, transparency and appropriateness is conducted after emergencies. In the last three national or international public health emergencies, the population and partners were informed of a real or potential risk within 24 hours of its confirmation.

Capability level 3: Results of evaluations are used to update the risk communication plan and shared with the global community.

Core capacity 7: Human resources

(See Annex 1, p. 43 for a detailed summary of the implementation levels of this core capacity)

QUESTION

Are sufficient human resources available to meet the needs of this event? How have they been trained?

EXPECTED RESPONSES

Capability level <1: A responsible unit has been identified to develop human resource capacity, including for the IHR (2005).

Capability level 1: A needs assessment has been conducted to identify gaps in human resources and training to meet IHR (2005) requirements. A workforce development or training plan that includes human resource requirements for IHR (2005) exists. A plan or strategy has been developed for the country to access field epidemiology training (one year or more) in-country, regionally or internationally.

Capability level 2: Progress is being made towards meeting workforce numbers and skills consistent with the milestones set in the training plan. A plan or strategy to access field epidemiology training has been implemented.

Capability level 3: Specific programmes exist and a budget allocated to train the workforce for IHR-related hazards.

Core capacity 8: Laboratory

(See Annex 1, p. 44 for a detailed summary of the implementation levels of this core capacity)

QUESTION

Is there reliable laboratory capacity in the country to test all samples related to this event? (This would include environmental and food samples in many of the scenarios.)

EXPECTED RESPONSES

Capability level <1: A policy is in place to ensure the quality of diagnostic capacity, such as licensing or accreditation.

Capability level 1: National laboratory quality standards are available. Networks of international laboratories are accessible to confirm diagnoses and test samples for which there is no or insufficient national capability to support outbreak investigations for events specified in the IHR (2005) Annex 2. National laboratory capacity meets diagnostic and confirmatory requirements for priority diseases. An up-to-date inventory of public and private laboratories with relevant diagnostic capacities is available.

Capability level 2: National reference laboratories participate successfully in External Quality Assessment schemes for major public health disciplines. More than 10 hazardous specimens (not including acute flaccid paralysis) are referred to the national reference laboratory for examination per year.

Capability level 3: All national reference laboratories are accredited to international standards or to national standards adapted from international standards.

QUESTION

Are adequately trained staff and materials available for the packing and transport of specimens?

EXPECTED RESPONSES

Capability level 1: National regulations compatible with international guidelines are in place for the packaging and transport of clinical specimens. Staff at the national or other relevant level are trained in the safe shipment of infectious substances under international standards. Sample collection and transportation kits have been prepositioned at appropriate levels for immediate mobilization during a public health event.

Capability level 2: Clinical specimens from investigations of urgent public health events are delivered for testing within an appropriate time frame. A functional system is in place to collect, package and transport clinical specimens and this process consistently meets the standards of IATA/ICAO (International Air Transport Association/International Civil Aviation Organization).

Capability level 3: At least 10 hazardous specimens per year are shipped internationally to a collaborating laboratory as part of an investigation or an exercise.

QUESTION

Are adequate biosecurity measures in place in laboratories where hazardous specimens will be examined?

EXPECTED RESPONSES

Capability level <1: Biosafety guidelines are accessible to laboratories.

Capability level 1: Regulations, policies or strategies for laboratory biosafety are available. A responsible entity is designated for laboratory biosafety and biorisk management.

Relevant staff are trained on laboratory biosafety and biosecurity guidelines. An institution or person has been identified as responsible for inspection of laboratories for compliance with biosafety requirements.

Capability level 2: Biorisk assessment is conducted in laboratories to guide and update biosafety regulations and practices, including decontamination and management of infectious waste.

QUESTION

What laboratory level surveillance is in place? Would information be shared with other authorities (agriculture, food safety, etc.)?

EXPECTED RESPONSES

Capability level <1: Priority pathogens for laboratory surveillance are identified.

Capability level 1: Standard reporting procedures between laboratory services and the surveillance department, including timeliness requirements by class of pathogen, are established.

Capability level 2: SOPs for data management, security and quality exist at diagnostic laboratories. Analysis of laboratory data is carried out with reports disseminated to relevant stakeholders.

Capability level 3: Country experiences and findings on laboratory surveillance are shared with the global community.

Points of entry

(See Annex 1, p. 47 for a detailed summary of the implementation levels of capacity at PoE)

QUESTION

What actions would be taken at relevant points of entry in this event? Who would be responsible for carrying out these actions and coordinating with relevant public health authorities?

EXPECTED RESPONSES

Capability level <1: A review meeting or other method to designate points of entry has taken place. Priority conditions for surveillance at designated PoE are identified.

Capability level 1: Surveillance information from designated PoE is shared with the public health surveillance authorities. PoE have been designated for development of capacities specified in the IHR (2005) Annex 1. Competent authorities have been identified at each designated PoE. A list of ports authorized to offer ship sanitation certificates has been sent to WHO (if applicable). Mechanisms are in place for the exchange of information between designated PoE and medical facilities. Procedures for coordination and communication between the NFP and the designated PoE competent authority with other relevant sectors and levels are in place and have been tested.

Capability level 2: Updated IHR health documents are implemented at designated PoE. Designated PoE are assessed. Relevant legislation or other legally binding instruments are updated as needed. Designated PoE have communications procedures established as required in IHR (2005) Annex 1. Procedures for international communication between PoE competent authorities and those of other countries have been tested and updated as needed.

Capability level 3: There is a joint designation of PoE capacity development between countries. Bilateral or multilateral agreements concerning prevention or control of international transmission of disease are developed.

QUESTION

What measures should be taken to ensure the safety and security of both travellers and facilities at PoE for this event?

EXPECTED RESPONSES

Capability level 1: Designated PoE have access to appropriate medical services including diagnostic facilities for the prompt assessment and care of ill travellers, including adequate staff, equipment and premises.

Capability level 2: Designated PoE can provide access to equipment and personnel for the transport of ill travellers to an appropriate medical facility. There is an inspection programme to ensure a safe environment at PoE facilities. A functioning programme for the control of vectors and reservoirs in and near PoE exists. Trained personnel for the inspection of conveyances are available at designated PoE.

Capability level 3: A review of surveillance of health threats at PoE has been carried out in the last 12 months and the results published.

QUESTION

Does the PoE have sufficient capacity to respond to this event?

EXPECTED RESPONSES

Capability level <1: SOPs for response at PoE are available.

Capability level 1: Each designated PoE has an established and maintained public health emergency contingency plan including a coordinator and contact points for relevant PoE, public health and other agencies and services. Designated PoE have appropriate space, separate from other travellers, to interview suspected or affected persons. Designated PoE have access to specially allocated equipment and personnel (including protection) for the transfer of travellers who may carry infection or contamination.

Capability level 2: Public health emergency contingency plans at designated PoE have been tested and updated as needed. Designated PoE can provide medical assessment or quarantine of travellers suspected to be ill and care for affected travellers or animals. Designated PoE can apply exit or entry control and other recommended public health measures.

Capability level 3: Results of the effectiveness of response to public health events at PoE have been published.

IHR potential hazards 1: Zoonotic events

(See Annex 1, p. 49 for a detailed summary of the implementation levels of these IHR potential hazards)

QUESTION

What is the process for detection, assessment and response to this event? Who would be in charge at each stage of the event? Who would be involved in the investigation? Who would be involved in the response?

EXPECTED RESPONSES

- Capability level <1: Coordination exists within Government authorities on detection and response to zoonotic events. A list of priority zoonotic diseases with case definitions is available. A regularly updated roster of experts who can respond to zoonotic events is also available.
- Capability level 1: A national policy or plan for surveillance and response to zoonotic events is in place. Focal points responsible for animal health are designated to coordinate with the human health sector and the NFP. There is systematic and timely collection of zoonotic disease data. There is access to laboratory capacity either nationally or internationally to confirm priority zoonotic events. A mechanism for coordinated response to outbreaks of zoonotic disease by animal and human health sectors is established.
- Capability level 2: Functional mechanisms for intersectoral collaboration, including animal and human health surveillance and laboratory units, are established. Zoonotic disease surveillance, including a community component, is implemented. Information exchange is timely between animal and human health authorities regarding potential zoonotic risks and urgent zoonotic events. More than 80% of zoonotic events of potential national and international concern are responded to in a timely manner.
- Capability level 3: Country experiences and findings related to zoonotic risks and events of potential national and international concern have been shared with the global community in the past 12 months.

IHR potential hazards 2: Food safety events

(See Annex 1, p. 50 for a detailed summary of the implementation levels of these IHR potential hazards)

QUESTION

What is the process for detection, assessment and response to this event? Who would be in charge at each stage of the event? Who would be involved in the investigation? Who would be involved in the response?

EXPECTED RESPONSES

Capability level <1: National or international food safety standards are available. A list of priority food safety risks is available. A roster of food safety experts is available for assessment and response to food safety events.

Capability level 1: National food laws, regulations or a policy to facilitate food safety control are in place. A coordination mechanism exists between the food safety authorities, such as the International Food Safety Authorities Network (INFOSAN) contact point, if the country is a member, and the NFP. Risk-based food inspection services are in place. Guidelines are available for the surveillance, assessment and management of priority food safety events. Epidemiological data related to food contamination are systematically collected and analysed. Communication mechanisms and materials are in place to deliver information, education and advice to stakeholders across the “farm-to-fork” continuum. Operational plans to respond to food safety events have been validated in an actual emergency or exercise and updated as needed.

Capability level 2: Functional mechanisms for multisectoral collaboration to detect, respond and communicate on food safety events are in place. National food laws, regulations and policies are up to date and implemented. Access is available to laboratory capacity (through established procedures) to confirm priority food safety events of national or international concern, including molecular techniques. A timely and systematic exchange of information exists between food safety authorities and other relevant sectors. Guidelines on the surveillance, assessment and management of priority food safety events are implemented. Mechanisms are in place to trace, recall and dispose of contaminated products. Information from foodborne outbreaks and food contamination is used to strengthen food management systems, safety standards and regulations. Operational plans to respond to food safety events are implemented.

Capability level 3: The country is a member of INFOSAN. Surveillance, assessment, and management of priority food safety events are evaluated and relevant procedures updated as needed. Analyses of food safety events, foodborne illness trends or outbreaks are published. Food safety control management systems, including for imported food, are implemented.

IHR potential hazards 3: Chemical events

(See Annex 1, p. 52 for a detailed summary of the implementation levels of these IHR potential hazards)

QUESTION

What is the process for detection, assessment and response to this event? Who would be in charge at each stage of the event? Who would be involved in the investigation? Who would be involved in the response?

EXPECTED RESPONSES

Capability level <1: Experts are identified for public health assessment and response to chemical incidents.

Capability level 1: National policies or plans for chemical event surveillance, alert and response exist. National authorities responsible for chemical events have a designated focal point to coordinate and communicate with public health authorities and the NFP. Coordination mechanisms with relevant sectors exist for surveillance and timely response to chemical events. A list of priority chemical events/syndromes that may constitute a potential public health event of national or international concern is drawn up. Surveillance is in place for chemical events, intoxications, and poisonings. Manuals and SOPs for rapid assessment, case management and control are available and disseminated. An emergency response plan for chemical emergencies is in place, which defines the roles and responsibilities of relevant agencies. Laboratory capacity is either available or accessible to confirm priority chemical events.

Capability level 2: Functional coordination mechanisms between relevant sectors have been implemented for surveillance and response to chemical events. An inventory of major hazard sites and facilities that could be a source of a chemical public health emergency is available. Timely and systematic information exchange exists between appropriate chemical units, surveillance units and other relevant sectors on urgent chemical events and potential chemical risks. An adequately resourced poison centre is in place. A chemical event response plan has been validated through an exercise or an actual event and updated as required.

Capability level 3: Country experience and findings regarding chemical events and risks of national and international concern are shared with the global community. A national chemical profile has been developed.

IHR potential hazards 4: Radiation emergencies

(See Annex 1, p. 54 for a detailed summary of the implementation levels of these IHR potential hazards)

QUESTION

What is the process for detection, assessment and response to this event? Who would be in charge at each stage of the event? Who would be involved in the investigation? Who would be involved in the response?

EXPECTED RESPONSES

- Capability level <1: Experts are identified for public health assessment and response to radiological and nuclear events.
- Capability level 1: National policies are in place to detect, assess, and respond to radiation emergencies. National policies, strategies or plans are established for national and international transport of radioactive material, samples and waste management including those from hospitals and medical services. National authorities responsible for radiological and nuclear events have designated a focal point for coordination and communication with the Ministry of Health and the NFP. Monitoring exists for radiation emergencies that may constitute a public health event of national or international concern. A radiation emergency response plan exists (could be part of the national emergency response plan). A mechanism is in place to access health facilities with capacity to manage patients of radiation emergencies. Access (nationally or internationally) to laboratory capacity is available to detect and confirm the presence of radiation and to identify its type (alpha, beta, or gamma) for potential radiation hazards. Collaborative mechanisms are in place to access specialized laboratories that are able to perform bioassays, biological dosimetry by cytogenetic analysis and electron spin resonance (ESR).
- Capability level 2: Functional communication and coordination mechanisms exist between relevant national competent authorities responsible for nuclear regulatory control/safety and other relevant sectors. Systematic information exchange is in place between radiological competent authorities and human health surveillance units on urgent radiological events and potential risks that may constitute a public health emergency of national or international concern. National policies, strategies, or plans have been implemented to detect, assess, and respond to radiation emergencies. Technical guidelines or SOPs have been developed, evaluated and updated to manage radiation emergencies (including risk assessment, reporting, event confirmation, notification, and investigation). Radiation emergency response drills are carried out regularly, including requests for international assistance (as needed) and international notification.
- Capability level 3: Country experiences on the detection and response to radiological risks and events are documented and shared with the global community. Collaborative mechanisms have been evaluated on access to specialized laboratories that are able to perform bioassays, biological dosimetry by cytogenetic analysis, and ESR.

Annex 1. International Health Regulations (2005) core capacities*

Core capacity 1: National legislation¹, policy and financing

Component ² of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
National legislation ³ and policy	Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient ⁴ for implementation of IHR.	Not Applicable ⁵	Assessment ⁶ of relevant legislation, regulation, administrative requirements and other government instruments for IHR (2005) implementation has been carried out.	Recommendations following assessment of relevant legislation, regulations, administrative requirements and other government instruments are implemented.	Key elements of national/domestic IHR-related legislation are published ⁷ .
			Review of national policies to facilitate IHR NFP function and IHR technical core capacities ⁸ is carried out.	Policies to facilitate IHR NFP core and expanded ⁹ functions and to strengthen core capacities are implemented.	
Financing	Funding is available and accessible for IHR NFP functions and IHR core capacity strengthening	Funding for IHR NFP functions is available.	Funding ¹⁰ available for IHR core capacities ¹¹ , IHR relevant hazards ¹² and PoE.	IHR core capacities strengthened at the sub-national and community/primary response level in the last 12 months	Resources committed ¹³ to meet IHR requirements beyond country's borders. (<i>Article 44 1c</i>)

¹ The WHO Constitution provides that once a new revision of the IHR is adopted by the Health Assembly, all WHO Member States are automatically legally bound by it unless the Member State affirmatively and formally opts out of the new IHR within a limited time period. The deadline to reject or make a reservation to the IHR (2005) passed on 15 December 2006. No Member State rejected or opted out of the IHR (2005); only two Member States made reservations. Accordingly, all WHO Member States were legally bound as a matter of international law to the IHR (2005). Under the WHO Constitution and the IHR, it is not required that Member States individually ratify or sign the IHR in order to be bound by it as of 2007.

² The capability level of a component is the same as that of the indicator under this component, as there is a one-to-one relationship between a component and an indicator.

³ Not strictly a technical core capacity, but important to facilitate implementation of other core capacities of technical nature.

⁴ A sufficient legal framework for complying with IHR obligations was required as of the date the IHR entered into legal force for all States Parties in 2007; the 2012 deadline for implementation of additional technical capacities in Annex 1 does not apply to the legal framework.

⁵ See 1.

⁶ While an assessment and revision of national legislation for IHR implementation is not explicitly required in the IHR, it has been strongly urged by the WHA, and advised in WHO guidance documents. For detailed information, see Section I.2 of the WHO Toolkit for IHR Implementation in National Legislation at http://www.who.int/ihr/3._Part_I_Questions_and_Answers.pdf. Moreover, as technical capacities and national governance and legal contexts have evolved since entry into force of the IHR (2005) in 2007, an assessment of this period is advisable. For advantages and benefits of revising legislation, laws, regulations, administrative requirements, policies or other government instruments, see paragraph 4 on Page 14 of this document.

⁷ WHO does not endorse or recommend specific legislation. For information purposes, WHO publishes a compilation of national IHR-Related legislation adopted by States Parties on its web site

* The source of all tables presented in Annex 1 is the International Health Regulations (2005) Core Capacity Monitoring Framework: Checklist and indicators for monitoring progress in the development of IHR core capacities in States Parties. Geneva, World Health Organization, 2013 (http://apps.who.int/iris/bitstream/10665/84933/1/WHO_HSE_GCR_2013.2_eng.pdf?ua=1, accessed 5 October 2015).

Annex 1. IHR core capacities

http://www.who.int/ihr/7._Part_III_Compilation_of_examples_of_national_legislation.pdf. Other relevant documents and materials are available to download on the WHO IHR website, at: http://www.who.int/ihr/legal_issues/legislation/en/index.html.

⁸ Technical core capacities include surveillance, response, preparedness, risk communication, human resources and laboratory.

⁹ In addition to coordination and communications, expanded roles of the NFP include risk assessment, core capacity development, advocacy etc.

¹⁰ This includes government or other sources of funding for IHR implementation.

¹¹ While the IHR require that the technically core capacities in Annex 1 be developed, they do not require particular financing or related resource mechanisms. This approach of a budget-line item or other relevant allocation was deemed to be an important option by the Expert Group, depending upon the particular context.

¹² Hazards such as zoonotic diseases, food safety events, chemical events, radiological and nuclear etc.

¹³ Committed: resources for IHR implementation.

Core capacity 2: Coordination¹ and NFP communications

Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
IHR coordination, communication and advocacy ²	A functional mechanism is established for the coordination of relevant sectors ³ in the implementation of IHR.	Coordination within relevant ministries on events that may constitute a public health event or risk of national or international concern.	National standard operating procedures (SOP) ⁴ or equivalent exist for the coordination between IHR NFP and relevant sectors. A multi-sectoral, multidisciplinary body, committee or taskforce ⁵ addressing IHR requirements on surveillance and response for public health emergencies of national and international concern is in place.	Multisectoral and multidisciplinary coordination and communication mechanisms are tested and updated regularly through exercises or through the occurrence of an actual event.	Annual updates on the status of IHR implementation to stakeholders across all relevant sectors conducted. Action plan developed to incorporate lessons learnt of multisectoral and multidisciplinary coordination and communication mechanisms
	IHR NFP functions and operations are in place as defined by the IHR (2005).	The IHR NFP ⁶ is established. National stakeholders ⁷ responsible for the implementation of IHR identified.	Information on obligations ⁸ of the IHR NFP disseminated to relevant national authorities and stakeholders. Roles and responsibilities of relevant authorities and stakeholders in regard to the IHR implementation are defined and disseminated. IHR Event Information Site is used as an integral part of the IHR-NFP information resource ⁹ .	The IHR NFP provides WHO with updated contact information and annual confirmation of the IHR-NFP. Plans to sensitize ¹⁰ stakeholders on their roles and responsibilities under the IHR implemented.	An active ¹¹ IHR web site or web page is established. Implementation of additional roles ¹² and responsibilities to IHR NFP functions. Functions of the IHR-NFP evaluated for effectiveness (e.g. empowerment, timeliness, transparency, appropriateness of communication)

¹ A coordination mechanism (such as a multi-sectoral, multidisciplinary body, committee or task force addressing IHR requirements on surveillance) is available and functional (membership from all relevant sectors, established communications channels, access to decision-makers and contacts, joint activities, meeting reports, plans and evaluations.

² Advocacy is a strategic process designed to get specific target audiences (such as political leaders and stakeholders) to demonstrate commitment to IHR implementation. Commitment may be shown through new or changed laws, increased funding, or active awareness-raising among all relevant stakeholders of the IHR and their roles in their implementation.

³ Relevant sectors and disciplines (private and public), for example, all levels of the health care system (national, sub-national and community/primary public health) NGOs, and 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 (information about migration flow), treasury or finance (customs) of the environment, the interior, home office, health and tourism.

⁴ Should detail the terms of reference, roles and responsibilities of the IHR NFP; implementing structures; and stakeholders in the implementation of the IHR.

⁵ Countries decide who will chair this committee or taskforce, but it should include participation of the national IHR NFP in meetings and decision making processes.

Annex 1. IHR core capacities

⁶ The IHR NFP should have been established as of 2007, and comprise the following mandatory elements for all Member States: 24/7 availability for communications with WHO; the capacity to send urgent communications regarding IHR to WHO; information collection from all relevant sectors to send to WHO under IHR WHO (Arts. 5 – 12); urgent dissemination of IHR information from WHO to relevant government sectors etc.; functional communications channels with all sectors and decision-maker(s); and communications with competent authorities on health measures implemented.

⁷ Stakeholders are any groups, organizations or systems that can help affect or be affected by a public health event.

⁸ The States Parties obligations, rights and other provisions concerning SPs are included throughout the IHR and make up more than half the provisions in the IHR.

⁹ Used at least monthly.

¹⁰ Specific activities (such as advocacy meetings, trainings, workshops etc.) carried out regularly to increase the awareness of the IHR with stakeholders including with relevant ministries and partners.

¹¹ The webpage should be regularly reviewed and updated with timely information.

¹² <http://www.who.int/ihr/elibrary/legal/en/index.html>.

Core capacity 3: Surveillance

Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
Indicator based ¹ , surveillance (also referred to as structured surveillance, routine surveillance, or surveillance for defined conditions)	Indicator based surveillance ² includes an early warning ³ function for the early detection of a public health event	A list of priority diseases ⁴ , conditions and case definitions for surveillance is available. There is a specific unit designated for surveillance of public health risks.	Surveillance data on epidemic prone and priority diseases are analysed at least weekly at national and sub-national levels. Baseline estimates, trends and thresholds for alert and action are defined for the community/primary response level for priority diseases/events.	Timely ⁵ reporting from at least 80% of all reporting units takes place. Deviations or values exceeding thresholds are detected and used for action at the primary response level ⁶ (Annex 1A Article 4a). Regular ⁷ feedback ⁸ of surveillance results is disseminated to all levels and other relevant stakeholders.	Evaluation of the early warning function of the indicator based surveillance and country experiences, findings and lessons learnt shared with the global community.
Event based surveillance ⁹	Event based surveillance ¹⁰ is established and functioning	Unit(s) responsible for event-based surveillance ¹¹ identified	Country SOPs and/or guidelines for event based surveillance ¹² are available. Information sources ¹³ for public health events and risks ¹⁴ are identified. System or mechanisms in place at national and/or sub-national levels for capturing public health events from a variety of sources ¹⁵ .	SOPs and/or guidelines for event capture, reporting, confirmation, verification, assessment and notification are implemented. Active engagement and sensitization of community leaders, networks, health volunteers, and other community members, on the detection and reporting of unusual events as required. Community/primary response level reporting evaluated and updated as needed.	Country experiences and findings on implementation of event-based surveillance and the integration with indicator based surveillance are documented and shared with the global community. Arrangements with neighbouring countries to share data on surveillance and control of public health events that might be of international concern.
		The decision instrument in Annex 2 of the IHR (2005) is used to notify WHO	100% of events that meet criteria for notification under Annex 2 of IHR have been notified by IHR-NFP to WHO (Annex 1A Art 6b) within 24 hours of conducting risk assessments ¹⁶ (Article 6.1) over	All reports of urgent ¹⁷ events are assessed ¹⁸ within 48 hours of reporting (Annex 1A 6a) The IHR NFP responds to 100% of verification requests from WHO within 24 hours (Art 10) in	Country experiences and findings in notification and use of Annex 2 of the IHR are documented and shared globally.

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Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
			the last 12 months	the past 12 months. The use of the decision instrument is reviewed and procedures for decision making are updated on the basis of lessons learnt.	

1. Indicator-based surveillance is the routine reporting of cases of disease, and includes notifiable disease surveillance systems, sentinel surveillance, laboratory-based surveillance etc. This routine reporting is commonly health care facility-based with reporting done on a weekly or monthly basis.
2. Surveillance is the systematic on-going collection, collation and analysis of data for public health purposes and the timely dissemination to those who need to know for public health action. Surveillance functions should be carried out according to international standards, with well-defined roles, established chains of command and communications, nationally and internationally, relevant standards, guidelines and SOP, appropriate data management and analysis and regular feedback and supervision.
3. An early warning component detects departures from what is normal.
4. Priority diseases are those with the highest public health significance as defined by the country and should include the diseases in Annex 2 of the IHR.
5. As defined by country standards.
6. e.g., documented investigations of an actual disease situation other than acute flaccid paralysis (Any reports of AFP is assumed to be routinely investigated).
7. As defined by country.
8. e.g. Epidemiological bulletins, electronic summaries, newsletters, surveillance reports, etc.
9. Event-based surveillance is 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. media, health workers and NGO reports).
10. Indicator-based and event-based surveillance are not necessarily separate surveillance systems and both contribute to the early warning function critical for early detection and prompt response. Although the surveillance functions described are often common to both types of surveillance, the expert working group proposed that the two strategies be separated in this document. This would help countries better identify areas to strengthen in implementing this newer concept, particularly since routine surveillance (IBS) is already well established in many countries.
11. This may be part of the existing routine surveillance system.
12. Covers event capture, reporting, epidemiological confirmation, assessment and notification as appropriate.
13. Sources of information can include some, or all of the following: Health sources include poison centres, veterinary and animal health sources, environmental health services, pharmacovigilance centres, quarantine service, sanitation agencies and associated laboratories (water, food, environmental monitoring, etc.), food safety authorities/agencies, health inspection agencies (restaurants, hotels, buildings), water supply companies and competent authorities at PoE. Non-Health sources include radiation protection offices, radiological monitoring services, nuclear regulatory bodies, consumer protection groups, political sources, NGOs, embassies, the military, prisons, media, published sources (internet, academic press) and community based sources. Sources that reflect the impact of health events include pharmacies, to monitor drug consumption patterns; schools, to monitor student absenteeism; and metrological centres, to monitor effects of weather changes (rainfall, temperatures).
14. This includes events related to the occurrence of disease in humans, such as clustered cases of a disease or syndromes, unusual disease patterns or unexpected deaths as recognized by health workers and other key informants in the country; and events related to potential exposure for humans.
15. e.g. including veterinary, media (print, broadcast, community, electronic, internet etc.)
16. Risk assessment can be carried out at various levels (national or sub-national) depending on national structure.
17. For the purposes of Annex 1, the criteria for urgent events include serious public health impact and/or unusual or unexpected nature with high potential for spread.
18. Risk assessment can be carried out at various levels (national or sub-national) depending on national structure.

Core capacity 4: Response

Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
Rapid response capacity	Public health emergency ¹ response mechanisms are established and functioning.	Resources for rapid response during public health emergencies of national or international concern are accessible	Public health emergency response procedures are established for command, communications and control during emergency response operations	Emergency response management procedures (including mechanism to activate response plan) are evaluated and updated after a real or simulated public health response	A functional, dedicated command and control operations centre in place.
			Case management guidelines for priority conditions		
			Staff trained (including RRT members) been trained in specimen collection and transport	Evaluations of response, including for timeliness ³ and quality, are systematically carried out	Assistance is offered to other States Parties for developing their response capacities or implementing control measures.
			SOPs and/or guidelines for RRT deployment available.	Multidisciplinary RRTs can be deployed ⁴ within 48 hrs ⁵ from the first report of an urgent ⁶ event.	
Case management	Case management procedures are implemented for IHR relevant hazards ⁷ .	Case management guidelines are available for priority epidemic prone diseases.	Case management guidelines for priority diseases ⁸ and IHR relevant hazards ⁹ are available at relevant health system levels. SOPs are available for the management and transport of potentially infectious patients in the community and at PoE ¹⁰ .	Patient referral and transportation ¹¹ systems are implemented according to national or international guidelines. Appropriate staff (as defined by the country) is trained in management of relevant IHR related emergencies.	Country experiences on case management of major biological, chemical, radiological and nuclear contamination events are published and shared with the global community.
Infection control ¹²	Infection prevention and control (IPC) is established and functioning at national and	Responsibility is assigned for surveillance of healthcare associated infections within	A national IPC policy, or operational plan, is available SOPs, guidelines and protocols for IPC are	Infection control plans are implemented nationwide Surveillance within high risk groups ¹⁵ to	Infection control measures and the effectiveness is regularly evaluated and published

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Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
	hospital levels.	the country Responsibility is assigned for surveillance of anti-microbial resistance ¹³ within the country	available to all hospitals All tertiary hospitals have designated area(s) and defined procedures for the care of patients requiring specific isolation precautions ¹⁴ according to national or international guidelines Norms are defined or guidelines developed for protecting health care workers from health-care associated infections.	promptly detect and investigate clusters of infectious disease patients, and any unexplained illnesses in health workers established Qualified IPC professionals are in place at all tertiary hospitals A monitoring system for antimicrobial resistance established	A national programme ¹⁶ for protecting health care workers is implemented A functional monitoring system for antimicrobial resistance implemented with data on magnitude and trends available
Disinfection, decontamination and vector control ¹⁷	A programme for disinfection, decontamination and vector ¹⁸ control is established and functioning.	An up-to-date inventory of essential materials for disinfection and vector control ¹⁹ exists.	Essential materials for disinfection ²⁰ , decontamination and vector control are available at relevant sites. Safe disposal policy and procedures for medical and non-medical waste established.	Decontamination capabilities ²¹ are established for chemical decontamination to address main chemical risks. Decontamination capabilities are established for radiological and nuclear hazards as relevant to the country's situation.	Assistance is offered to other States Parties for developing their disinfection and decontamination capacities.

^{1.} This includes emergencies relevant to the IHR.

^{2.} RRT is a group of :multisectoral/multidisciplinary persons that are ready to respond on a 24 hour basis (Annex 1A, Article 6h) to a public health event; trained in outbreak investigation and control, infection control and decontamination, social mobilization and communication, specimen collection and transportation, chemical event investigation and management and if applicable, radiation event investigation and management. The composition of the team is determined by the country concerned.

^{3.} The amount of time considered here is the time between detection of the event and initiation of a recommended response.

^{4.} Note: some hazard responses may require more timely response than 48 hours.

^{5.} The amount of time considered here is the time between detection of the event and initiation of a recommended response.

^{6.} For the purposes of Annex 1, the criteria for urgent events include serious public health impact and/or unusual or unexpected nature with high potential for spread.

^{7.} Hazards such as zoonotic diseases, food safety events, chemical events, radiological and nuclear etc.

^{8.} Priority diseases should include IHR specified diseases in Annex 2 (IHR 2005): smallpox, poliomyelitis due to wild-type poliovirus, human influenza caused by a new subtype, severe acute respiratory syndrome (SARS) etc.

^{9.} Nuclear, chemical, zoonotic and food safety.

^{10.} As specified in Article 57, 2(d) IHR (2005).

^{11.} Annex 1B, 1(b) IHR (2005).

^{12.} This refers to an institutionalized national IPC authority with a dedicated staff, budget, objectives, scope and functions. Healthcare facilities are needed to elaborate and implement local policies in accordance with national IPC programme and standards.

Comprehensive information on infection control can be found in the WHO document "Core components for infection prevention and control programmes" at http://www.who.int/csr/resources/publications/WHO_HSE_EPR_2009_1/en/.

^{13.} May be the same responsible entity (unit/person) responsible for health-care associated infections

^{14.} Isolation precautions include: a designated area (e.g., a single room or ward), an adequate number of staff and appropriate equipment for management of the risk of infection.

^{15.} High risk groups include intensive care unit patients, neonates, immunosuppressed patients, emergency department patients with unusual infections, etc.

^{16.} This includes preventive measures and treatment offered to health care workers, e.g., influenza or hepatitis vaccine programmes for health care workers and personal protective equipment.

^{17.} This capacity is understood as actions taken during response at sites.

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- ^{18.} As defined in the IHR (2005), vector means an insect or other animal which normally transports an infectious agent that constitutes a public health risk.
- ^{19.} Note that for small countries this might not be necessary.
- ^{20.} Personal protective equipment, disinfectants etc.
- ^{21.} Decontamination capability includes inspecting, inventorying, storing and purchasing personal protective equipment when needed, upkeep and maintenance of the decontamination equipment, maintenance of training records, on-going training, recruitment of new team members, maintenance of exposure records etc.

Core capacity 5: Preparedness¹

Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
Public health emergency preparedness and response	Multi-hazard National Public Health Emergency Preparedness and Response Plan is developed and implemented	Assessment ² of the ability of existing national structures and resources to meet IHR core capacity requirements (Annex 1A Article 2)	National public health emergency response plans incorporate IHR related hazards and PoE.	The national public health emergency response plan(s) is implemented /tested in actual emergency or simulation exercises and updated as needed.	Country experiences and findings on emergency response and in mobilizing surge capacity are documented and shared with the global community.
		A national plan to meet IHR core capacity requirements has been developed (Annex 1A Article 2)	Procedures, plans or strategy in place to reallocate or mobilize resources from national and sub-national levels to support action at community /primary response level. Surge capacity ³ to respond to public health emergencies of national and international concern is available	Procedures, plans or strategy to reallocate or mobilize resources from national and sub-national levels to support action at community /primary response level implemented Surge capacity to respond to public health emergencies of national and international concern and tested through an exercise or actual event (e.g. as part of the response plans).	Procedures, plans or strategy to reallocate or mobilize resources from national and sub-national levels to support action at community /primary response level reviewed and updated as needed
Risk and resource management for IHR preparedness	Priority public health risks and resources are mapped and utilized.	A directory of experts in health and other sectors to support a response to the IHR related hazards is available.	A national risk assessment ⁴ has been conducted to identify potential 'urgent public health events' and the most likely sources of these events Plan ⁶ for management and distribution ⁷ of national stockpiles in place	National resources have been mapped ⁵ for IHR relevant hazards and priority risks National profiles on risks and resources developed Stockpiles (critical stock levels) for responding to priority biological, chemical and radiological events and other emergencies are accessible	The national risk profile assessed regularly to accommodate emerging threats. The national resources for priority risks assessed regularly to accommodate emerging threats. Contributes to international stockpiles

¹ Preparedness for development of public health emergency systems including implementation of the IHR.

² i.e. mapping of local infrastructure, PoE, health facilities, major equipment and supplies, staff, funding sources, experts, equipment, laboratories, institutions, NGOs to assist with community-level work, and transport.

³ Surge capacity: the ability of the health system to expand beyond normal operations to meet a sudden increased demand. Surge capacity encompasses potential patient beds; available space in which patients may be triaged, managed, vaccinated, decontaminated, or simply located; available personnel of all types; necessary medications, supplies and equipment; and even the legal capacity to deliver health care under situations which exceed authorized capacity (Health Care at the Crossroads: Strategies for Creating and Sustaining Community-wide Emergency Preparedness Strategies. JCAHO 2003).

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- ⁴ The risks are not only due to the source, but also the vulnerabilities and the absence or presence of capacities. This risk assessment should include the mapping of various hazards, disease outbreaks patterns, local disease transmission patterns, contaminated food or water sources, etc. as well as possible hazard sites or facilities which could be the source of a chemical, radiological, nuclear or biological public health emergency of international concern, vulnerable populations.
- ⁵ i.e. mapping of local infrastructure, PoE, health facilities, major equipment and supplies, staff, funding sources, experts, equipment, laboratories, institutions, NGOs to assist with community-level work, and transport.
- ⁶ Could include management of international resources if needed.
- ⁷ This includes the rotation of stocks in respect to their expiry dates, proper storage conditions for various drugs, logistic requirements and distribution to pharmacies and hospitals around the country.

Core capacity 6: Risk communication

Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
Policy and procedures for public communications	Mechanisms for effective risk communication during a public health emergency are established and functioning	Risk communication partners and stakeholders ¹ are identified.	A risk communication plan ² developed Policies, SOPs or guidelines are developed on the clearance ³ and release of information during a public health emergency.	Risk communication plan implemented or tested through actual emergency or simulation exercise and updated in the last 12 months Evaluation of the public health communication conducted after emergencies, for timeliness, transparency ⁴ and appropriateness of communications.	Results of evaluations used to update risk communication plan Results of evaluations of risk communications efforts during a public health emergency have been shared with the global community
			A regularly updated information source is accessible to media and the public for information dissemination ⁵ Accessible and relevant information, education and communications materials ⁶ tailored to the needs of the population are available	In the last three national or international PH emergencies, populations and partners were informed of a real or potential risk within 24 hours following confirmation	

^{1.} Stakeholders are any groups, organizations or systems that can help affect or be affected by communications during a public health event.

^{2.} The risk communication plan should include the roles and responsibilities of the stakeholders as well as the social mobilization of communities

^{3.} Procedures in place for clearance by scientific, technical and communications staff before information is released during public health events.

^{4.} Transparency implies openness, communication and accountability, i.e., all information about public health risk is open and freely available.

^{5.} This includes, as appropriate, community meetings, press briefings, national radio broadcasts, web sites/webpages (at national level) etc.

^{6.} The views and perceptions of individuals, partners and communities affected by public health emergencies should be systematically taken into account. This includes vulnerable, minority, disadvantaged or other at-risk populations.

Core capacity 7: Human resources

Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
Human resource capacity	Human resources are available to implement IHR core capacity requirements.	A responsible unit has been identified for the development of human resource capacity including for the IHR	<p>A needs assessment conducted to identify gaps in human resources and training¹ to meet IHR requirements</p> <p>A workforce development or training plan that includes human resource requirements for IHR exists</p> <p>A plan or strategy developed for the country to access field epidemiology training (one year or more) in-country, regionally or internationally</p>	<p>Progress for meeting workforce numbers and skills consistent with milestones set in the training plan</p> <p>A plan or strategy to access field epidemiology training (one year or more) in-country, regionally or internationally implemented</p>	Specific programmes and budget is allocated to train workforce for IHR-relevant hazards.

¹. Assessment of training needs includes circulating a questionnaire, a consensus of experts or systematic review.

Core capacity 8: Laboratory^{1,2}

Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
Policy and coordination of laboratory services	Coordinating mechanism for laboratory services is established.	A laboratory focal point identified for coordinating laboratory services.	A national Plan of Action that includes essential functions of laboratories, minimum standards and licensing/registration, is available.	Up to date policies disseminated to diagnostic laboratories, specifying minimal requirements ³ in authorized laboratory services ⁴ .	Regulatory authorities are designated to validate or regulate the in-vitro diagnostic devices used within the country.
Laboratory diagnostic and confirmation capacity	Laboratory services are available to test for priority health threats.	Policy to <i>ensure</i> quality of laboratory diagnostic capacity (e.g., licensing, accreditation etc.)	<p>National laboratory quality standards/guidelines available.</p> <p>Access to networks of international laboratories established to meet diagnostic and confirmatory laboratory requirements and support outbreak investigations for events specified in Annex 2 of IHR (2005)</p> <p>National laboratory capacity to meet diagnostic and confirmatory laboratory requirements for priority diseases</p> <p>Up to date and accessible inventory of public and private laboratories with relevant diagnostic capacities available</p>	<p>National reference laboratories participate successfully in External Quality Assessment schemes for major public health disciplines⁵ for diagnostic laboratories</p> <p>Greater than 10 non-AFP hazardous specimens per year referred to national reference laboratories for examination</p>	All national reference laboratories are accredited to international standards ⁶ , or to national standards adapted from international standards
			<p>National regulations compatible with international guidelines implemented for the packaging and transport, of clinical specimens</p> <p>Staff at national or relevant level trained for the safe shipment of infectious substances according to international standards (ICAO/IATA⁸)</p> <p>Sample collection and transportation kits been prepositioned at appropriate levels for immediate mobilization during a PH event</p>	<p>Clinical specimens from investigation of urgent public health events⁷ are delivered for testing to appropriate national or international reference laboratory within the appropriate time-frame of collection</p> <p>Functional⁹ system for collection, packaging and transport of clinical specimens</p> <p>Processes for shipment of infectious substances when</p>	At least ten hazardous specimens per year is shipped internationally to a collaborating laboratory as part of an investigation or exercise

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Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
				investigating an urgent public health event consistently meet IATA/ICAO standards	
	Influenza surveillance is established ¹⁰ .	Access to influenza testing, nationally or internationally.	Procedures are in place for rapid virological assessment of clusters of cases with severe acute respiratory illness of unknown cause, or individual cases when epidemiologic risk is high	Participates in Global Influenza Surveillance Network, with regular submission of viral isolates for analysis.	National data/maps of circulating strains of influenza are available and shared with the global community.
Laboratory biosafety and Laboratory Biosecurity	Laboratory biosafety and Laboratory Biosecurity (Biorisk management ¹¹) practices are in place and implemented	Biosafety guidelines are accessible to laboratories	An institution or person ¹² responsible for inspection (could include certification of biosafety equipment) of laboratories for compliance with biosafety requirements is identified Regulations, policies ¹³ or strategies for laboratory biosafety are available. A responsible entity ¹⁴ is designated for laboratory biosafety and laboratory bio-security (biorisk management). Relevant staff are trained on laboratory biosafety and laboratory biosecurity guidelines.	Biorisk ¹⁵ assessment is conducted in laboratories to guide and update biosafety regulations, procedures and practices, including for decontamination and management of infectious waste.	
Laboratory based surveillance	Laboratory data management and reporting is established.	Priority pathogens for laboratory based surveillance are identified.	Standard reporting procedures between laboratory services and the surveillance department, including timeliness requirements by class of pathogen, are established.	SOPs for data management, data security and data quality exist at diagnostic laboratories. Analysis of laboratory data with reports disseminated to relevant stakeholders ¹⁶ is done.	Country experience and findings regarding laboratory based surveillance are shared with the global community.

¹ IHR (2005) Annex 1, paragraph 6(b): "Public health response to provide support through specialized staff, laboratory analysis of samples (domestically or through collaborating centres) and logistical assistance (e.g. equipment, supplies and transport)".

² 'Laboratory(ies)' in this Core Capacity refers to national laboratories or external laboratories that the country has access to, through agreements.

³ Based on countries needs and priorities related to IHR.

⁴ Services include authorized tests, procedures and resources (human resources and budget).

⁵ E.g., virology, haematology, immunology, microbiology, etc.

⁶ International standards: ISO 9001, ISO 17025, ISO 15189, WHO standards for polio, measles, etc.

⁷ Greater than 80%.

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- ⁸ International Civil Aviation Organization (ICAO); International Air Transport Association (IATA).
- ⁹ Proper samples collected and stored in good conditions, and sent to appropriate laboratories in a timely manner.
- ¹⁰ Influenza surveillance here is used as a proxy for diseases in Annex 2 of IHR.
- ¹¹ Management of biorisks in, or associated with the laboratory.
- ¹² With allocated resources, SOPs etc.
- ¹³ This includes local policies or regulations for the protection of laboratory workers (e.g., immunization, emergency antiviral therapy, specific measures for pregnant women, protective personal equipment use, etc.) and guidelines for the management and disposal of hazardous substances.
- ¹⁴ This could be an expert group, committee or institution.
- ¹⁵ Biorisk is combination of the probability of occurrence of harm and the severity of that harm where the source of harm is a biological agent or toxin e.g. risks posed by the handling, manipulation, storage, and disposal of infectious substances.
- ¹⁶ Stakeholders include the ministry of health's epidemiological department, national reference laboratories and private laboratories, as applicable.

Points of Entry

Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
General obligations required at Points of Entry ¹ (PoE)	General obligations at PoE are fulfilled (including for coordination and communication).	<p>A review meeting (or other method as appropriate) conducted on designating PoE has been held.</p> <p>Priority conditions for surveillance at designated PoE are identified.</p>	<p>Surveillance information at designated PoE is shared with the surveillance department/unit</p> <p>Ports/airports/ground crossings are designated for development of capacities specified in Annex 1 of the IHR</p> <p>Competent authorities² are identified at each designated point of entry as specified in Article 19B of the IHR (2005).</p> <p>A list of Ports authorized to offer ship sanitation certificates has been sent to WHO (as specified in Article 20, No.3) if applicable.</p> <p>Mechanisms for the exchange of information between designated PoE and medical facilities are in place.</p> <p>Procedures⁶ for coordination and communication between the IHR NFP and the PoE competent authority, and with relevant sectors and levels, are in place and tested.</p>	<p>Updated IHR (2005) health documents³ are implemented at designated PoE.</p> <p>Designated PoE are assessed⁴.</p> <p>Relevant legislation, regulations, administrative acts, protocols, procedures and/or other government instruments are updated as needed.</p> <p>Designated PoE have communications procedures established as required by the IHR in Annex 1⁵</p> <p>Procedures for communication⁷ internationally between the PoE competent authority and other countries' PoE competent authorities are tested and updated as needed.</p>	<p>Joint designation of PoE for core capacity development between countries</p> <p>Bilateral or multilateral agreements or arrangements concerning prevention or control of international transmission of disease at PoE are developed.</p>
Core Capacities required at all times	Routine capacities and effective surveillance ⁸ are established at PoE.		<p>Designated PoE have access to appropriate medical services including diagnostic facilities for the prompt assessment and care of ill travellers and with adequate staff, equipment and premises (Annex 1B, 1a).</p>	<p>Designated PoE can provide access to equipment and personnel for the transport of ill travellers to an appropriate medical facility.</p> <p>Inspection program to ensure safe environment at PoE facilities⁹ functioning.</p> <p>A functioning programme for the control of vectors and reservoirs in and near PoE exists</p>	<p>A review of surveillance of health threats at PoE has been carried out in the last 12 months and the results published.</p>

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Component of core capacity	Country level Indicator	Development of IHR core capacities by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
				(Annex 1b, Art. 1e). Trained personnel for the inspection of conveyances are available at designated PoE (Annex 1b, Art. 1c).	
Core Capacities for Responding to public health emergencies at PoE	Effective response at PoE is established	SOPs for response at PoE are available.	Each designated PoE has an established and maintained public health emergency contingency plan to provide public health emergency response including a coordinator and contact points for relevant points of entry, public health and other agencies and services Designated PoE have appropriate space, separate from other travellers, to interview suspect or affected persons (Annex 1B, Art. 2c). Designated PoE have access to specially designated equipment, and to trained personnel (with appropriate personal protection), for the transfer of travellers who may carry infection or contamination available at designated PoE.	Public health emergency contingency plans at designated PoE have been tested and updated as needed Designated PoE can provide medical assessment or quarantine of suspect travellers and care for affected travellers or animals ¹⁰ (Annex 1B, Art. 2b and 2d). Designated PoE can apply entry or exit controls for arriving and departing travellers and other recommended public health measures ¹¹ (Art. 1B, Art. 2e, 2f).	Results of the evaluation of effectiveness of response to PH events at PoE published

¹ Indicate the number of designated Airports, Ports and Ground crossings in the comment box.

² The competent authority is the authority responsible for the implementation and application of health measures under the International Health Regulations (2005). The National IHR Focal Point is the national centre designated by a State Party to the International Health Regulations (2005) that is accessible at all times for communication with the World Health Organization contact points. (Articles 1 and 22).

³ International certificate of vaccination or prophylaxis, the Ship Sanitation Control Certificate, the Maritime declaration of Health, and the health part of the Aircraft General Declaration.

⁴ e.g. with PoE core capacities assessment tool and excel spread sheet http://www.who.int/ihr/ports_airports/PoE/en/index.html

⁵ National communication link between competent authorities at points of entry and health authorities at local, intermediate and national levels, Direct operational link with other senior health officials, Communication link with conveyance operators, Communication link with travellers for health related information, Communication link with service providers, Communication mechanism for the dissemination of information and recommendations received from WHO, International communication link with competent authorities at other points of entry

⁶ Procedures include SOPs or protocols, for example.

⁷ Note that this is cross-referenced with core capacity 2, and these attributes should also be considered under core capacity 2.

⁸ This could be part of the national surveillance system, or as assigned by the country.

⁹ Including potable water supplies, eating establishments, flight catering facilities, public washrooms, appropriate solid and liquid waste disposal services and other potential risk are, as appropriate.

¹⁰ By establishing arrangements with local medical and veterinary facilities for their isolation, treatment and other support services that may be required.

¹¹ Include entry or exit controls for arriving and departing travellers, and measures to disinsect, derat, disinfect, decontaminate or otherwise treat baggage, cargo, containers, conveyances, goods or postal parcels including, when appropriate, at locations specifically designated and equipped for this purpose.

IHR Potential hazards 1: Zoonotic events

Component of hazard	Indicators	Development of core capacities for zoonotic event detection and response by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
Capacity to detect and respond to zoonotic events of national or international concern	Mechanisms for detecting and responding to zoonoses and potential zoonoses are established and functional.	Coordination exists within the responsible government authority(ies) on the detection of, and response ¹ to zoonotic events.	National policy, strategy or plan for the surveillance and response to zoonotic events are in place. Focal point(s) responsible for animal health (including wildlife) designated for coordination with the ministry of health and/or IHR NFP ² .	Functional mechanisms ³ for intersectoral collaborations that include animal and human health surveillance units and laboratories are established.	Country experiences and findings related to zoonotic risks and events of potential national and international concern have been shared with the global community over the last twelve months.
		List of priority zoonotic diseases with case definitions available.	Systematic and timely collection and collation of zoonotic disease data is done. Access to laboratory capacity, nationally or internationally (through established procedures) to confirm priority zoonotic events is available.	Zoonotic disease surveillance that includes a community component is implemented. Timely ⁴ and systematic information exchange between animal surveillance units, human health surveillance units and other relevant sectors regarding potential zoonotic risks and urgent zoonotic events.	
		A regularly updated roster (list) of experts that can respond to zoonotic events is available.	A mechanism for response to outbreaks of zoonotic diseases by human and animal health sectors is established.	Timely ⁵ (as defined by national standards) response to more than 80% of zoonotic events of potential national and international concern.	

¹. Note that coordination for surveillance and coordination for response may be the responsibility of different authorities.

². Information sharing, meetings, SOPs developed for collaborative response etc.

³. A joint working group or other mechanism between the animal health surveillance system and the human health surveillance system and other relevant sectors.

⁴. Timeliness is judged and determined by each country.

⁵. "Timely" referred to here is the time between detection and response.

IHR Potential hazards 2: Food Safety

Component of hazard	Indicators	Development of core capacities for food safety event detection and response by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
Capacity to detect and respond to food safety events that may constitute a public health emergency of national or international concern	Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination.	National or international food safety standards are available ¹ .	National food laws, regulations or policy to facilitate food safety control are in place ² . A coordination mechanism is established between the food safety authorities, e.g. the INFOSAN Emergency Contact Point (if member) and the IHR NFP.	Functional mechanisms ³ for multisectoral collaborations for food safety events is in place. National food laws, regulations or policies up to date and implemented	The country is an active member of the INFOSAN ⁴ network.
		A list of priority food safety risks is available.	Risk-based food inspection services are in place. Guidelines or manuals on the surveillance, assessment and management of priority food safety events are available. Epidemiological data related to food contamination are systematically collected and analysed.	Access to laboratory capacity (through established procedures) to confirm priority food safety events of national or international concern including molecular techniques. Timely ⁵ and systematic information exchange between food safety authorities, surveillance units and other relevant sectors regarding food safety events. Guidelines or manuals on the surveillance, assessment and management of priority food safety events implemented	Surveillance, assessment and management of priority food safety events evaluated and relevant procedures updated as needed
		A roster of food safety experts is available for assessment and response to food safety events.	Communication mechanisms and materials are in place to deliver information, education and advice to stakeholders across the farm-to-fork continuum. Operational plan(s) for responding ⁶ to food safety events	Mechanisms are established to trace, recall and dispose of contaminated products ⁷ . Information from foodborne outbreaks and food contamination is used to strengthen food management systems, safety standards and	Analysis of food safety events, foodborne illness trends or outbreaks published. Food safety control management systems (including for imported food) are implemented.

Annex 1. IHR core capacities

Component of hazard	Indicators	Development of core capacities for food safety event detection and response by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
			tested in an actual emergency or simulation exercise and updated as needed.	regulations. Operational plan(s) for responding to food safety events implemented	

^{1.} This could be based on international standards.

^{2.} The National Food Safety Control System includes: food law and regulations, food control management, inspection services, laboratory services: food monitoring and epidemiological data, information, education, communication and training.

^{3.} A network, task force, committee or other mechanism to share information about events that may affect food safety and which is able to operate in a timely manner and effectively reduce the risk of foodborne illness.

^{4.} The International Food Safety Authorities Network (INFOSAN) is a global network of 177 national food safety authorities, developed and managed by WHO in collaboration with the Food and Agriculture Organization of the United Nations (FAO), that disseminates important global food safety information, and improves national and international collaboration.

^{5.} Timeliness is judged and determined by each country.

^{6.} Examples of essential steps in a food event response system after an alert include investigation, risk assessment, risk management, risk communication, effectiveness checks and recall follow-up.

^{7.} This would include all products that could be the source of contamination, e.g., feed, food ingredients and food products.

IHR Potential hazards 3: Chemical events

Component of hazard	Indicators	Development of core capacities for chemical event detection and response by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
Capacity to detect and respond to chemical events of national and international public health concern	Mechanisms are established and functioning for the detection, alert and response to chemical emergencies that may constitute a public health event of international concern.	Experts are identified for public health assessment and response to chemical incidents ¹ .	<p>National policies or plans for chemical event surveillance, alert² and response exist.</p> <p>National authorities responsible for chemical events have a designated focal point for coordination and communication with the ministry of health and/or IHR NFP.</p> <p>Coordination³ mechanisms with relevant sectors exist for surveillance and timely response to chemical events.</p>	Functional coordination mechanisms with relevant sectors implemented for surveillance and timely response to chemical events	Country experience and findings regarding chemical events and risks of national and international concern are shared with the global community.
			<p>A list of priority chemical events/syndromes that may constitute a potential public health event of national and international concern is identified.</p> <p>Surveillance is in place for chemical events, intoxication, and poisonings.</p> <p>Manuals and SOPs for rapid assessment, case management and control are available and disseminated.</p>		
			<p>An emergency response plan that defines the roles and responsibilities of relevant agencies is in place for chemical emergencies.</p> <p>Laboratory capacity or access to laboratory capacity to confirm priority chemical events is established.</p>	<p>Adequately resourced Poison Centre(s) are in place⁷.</p> <p>A chemical event response plan has been tested through occurrence of real event or through simulation exercise and is updated as needed.</p>	National chemical profile ⁶ developed

Annex 1. IHR core capacities

1. Includes chemical risk assessors, risk managers, and clinical toxicologists
2. Elements of alert include SOPs for coverage, criteria of when and how to alert, duty rosters etc.
3. Note that this cross-references with legislation, policy and financing (core capacities 1 and 2) and these attributes for this component should be also fully addressed under those core capacities. They are under this hazard for coherence, flow, and triangulation where this is administered to the hazard expert.
4. E.g., large chemical installations, factories, hazardous waste sites, specific transportation routes, storage sites for pesticides etc.
5. E.g. chemical surveillance, environmental monitoring and chemical incident reporting.
6. Definition and relevant information of National Chemical Profile, are available at <http://www2.unitar.org/cwm/nphomepage/index.html>
7. E.g., clinical toxicology, 7/24 hotline, material data sheet, safety data sheet, and contact details of chemical manufactures.

IHR Potential hazards 4: Radiation emergencies

Component of hazard	Indicators	Development of core capacities for radiation event detection and response by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
Capacity to detect and respond to radiological and nuclear emergencies that may constitute a public health event of national or international concern	Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies that may constitute a public health event of international concern.	Experts are identified for public health assessment and response to radiological and nuclear events.	<p>National policies, strategies or plans for the detection, assessment, and response to radiation emergencies are established.</p> <p>National policies, strategies or plans for national and international transport of radioactive material, samples and waste management including those from hospitals and medical services are established.</p> <p>National authorities responsible for radiological and nuclear events have a designated focal point for coordination and communication with the ministry of health and/or IHR NFP.</p>	<p>Functional coordination¹ and communication mechanism² between relevant national competent authorities responsible for nuclear regulatory control/safety, and relevant sectors³.</p> <p>Systematic information exchange between radiological competent authorities and human health surveillance units about urgent radiological events and potential risks that may constitute a public health emergency of international concern.</p> <p>National policies, strategies or plans implemented for the detection, assessment and response to radiation emergencies</p>	Country experiences on the detection and response to radiological risks and events are documented and shared with global community.
			Radiation monitoring exists for radiation emergencies that may constitute a public health event of international concern.	Technical guidelines or SOPs developed, evaluated and updated for the management of radiation emergencies (including risk assessment, reporting, event confirmation and notification, and investigation).	Collaborative mechanisms for access to specialized laboratories that are able to perform bioassays, biological dosimetry by cytogenetic analysis and ESR evaluated
			<p>A radiation emergency response plan exists (could be part of national emergency response plan).</p> <p>A mechanism is in</p>	Radiation emergency response drills carried out regularly, including the requesting of international	

Annex 1. IHR core capacities

Component of hazard	Indicators	Development of core capacities for radiation event detection and response by capability level			
		<1 Foundational	1 Inputs and processes	2 Outputs and outcomes	3 Additional achievements
			<p>place to access⁴ health facilities with capacity to manage patients of radiation emergencies.</p> <p>Access (nationally or internationally) to laboratory capacity to detect and confirm the presence of radiation and identify its type (alpha, beta, or gamma) for potential radiation hazards.</p> <p>Collaborative mechanisms in place for access to specialized laboratories that are able to perform bioassays⁵, biological dosimetry by cytogenetic analysis and ESR⁶.</p>	assistance (as needed) and international notification.	

¹ Note that this cross-references with legislation, policy and financing (core capacities 1 and 2), and these attributes for this component should be also fully addressed under those core capacities. They are under this hazard for coherence, flow, and triangulation where this is administered to the hazard expert.

² Information sharing, meetings, SOPs developed for collaborative response etc.

³ Coordination for risk assessments, risk communications, planning, exercising, monitoring and including coordination during urgent radiological events and potential risks that may constitute a public health emergency of international concern.

⁴ Have agreements, established arrangements and mechanisms to access these capacities in relevant collaborating institutions in country or in other countries.

⁵ To measure and monitor the amount of incorporated radioactivity in the human body by the use of whole-body counters, lung monitors, thyroid monitors, or in biological samples.

⁶ ESR: electron-spin resonance, measures a dose of radiation absorbed in the human body by measuring a special signal from tooth enamel, nails, hair or other material samples that may be found in items of clothing, mobile phones, etc.

Annex 2. Master events list (MEL) template

Scenario	Summary	Expected action	Achieved	Comments
Part 1 (and/or background)	A summary of the action is usually entered here. For example: cases of unusual illness identified in children.	Here, the actions expected in response to the scenario information are listed. For example: answers to the questions on core capacities relevant to the exercise. This list can be quite long.	In this column, the evaluators record how far the participants have reacted in line with the expected actions listed in column 3.	This box is used by the facilitator and evaluators to record their observations during the exercise.
Part 2	A summary of the action in this part of the scenario.	A list of the expected actions for this part of the scenario.	Yes/No	Observations for this part of the scenario.
Part 3	A summary of the action in this part of the scenario.	A list of the expected actions for this part of the scenario.	Yes/No	Observations for this part of the scenario.

Annex 3. Sample agenda

In addition to estimating the time required for each item based on the actual exercise being conducted, items in brackets should be customized to meet the needs and expectations of the exercise.

Tentative Agenda

[Date and location of exercise]

13:30–14:00	Welcome by [exercise sponsor or senior member of organization conducting the exercise]. Introductions (<i>include everyone in the room: participants, facilitator, evaluators, observers</i>) Review of exercise objectives Administrative items
14:00–14:15	Exercise introduction: Background and rationale
14:15–15:00	Scenario part 1 and discussion
15:00–15:45	Scenario part 2 and discussion
15:45–16:45	Scenario part 3 and discussion
16:45–17:30	Debriefing and closing remarks

(Include any information needed by the participants to get to the exercise venue, including security requirements, access badges, etc.)

Annex 4. Exercise report outline

The exercise report should be adapted to the style of the institution. However, all exercise reports should contain the following information.

Sample Exercise Report Outline

- **Introduction**
 - Purpose of the report
 - Preview of main topics
 - Evaluation methodology used
 - General summary of lessons identified and recommendations

- **Purpose of the exercise**
 - Background and rationale for holding the exercise

- **Exercise summary**
 - Goals and objectives
 - Pre-exercise activities
 - Participants
 - Description of exercise scenario

- **Accomplishments and lessons identified (strengths and opportunities for improvement)**
 - Evaluation of group findings
 - Summary of post-exercise debriefing

- **Recommendations**
 - Training needs
 - Changes to the National Plan of Action
 - Further exercises