INTEGRATED DISEASE SURVEILLANCE AND RESPONSE TECHNICAL GUIDELINES

THIRD EDITION

SECTION 5: PREPARE TO RESPOND TO OUTBREAKS AND OTHER PUBLIC HEALTH EVENTS

MARCH 2019

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5. PREPARE TO RESPOND TO OUTBREAKS AND OTHER PUBLIC HEALTH EVENTS

Rapid and effective response to a public health emergency such as a suspected outbreak or other public health event not only calls for an immediate response but is also one of the core capacities required by International Health Regulations 2005. Being prepared to detect and respond to such an event is an essential role of the district, regional and national levels.

Preparations for public health events include:

(a) establishment of the Public Health Emergency Management Committee (PHEMC);

(b) development of functional Public Health Emergency Operating Centres (PHEOC) that will act as a command and control centre for coordination of public health emergencies or events/incidents at least at the national level as well as a similar coordination structure at the subnational level;

(c) development of policies, plans and procedures for conducting operations, mapping available resources, estimating and procuring the required supplies and conducting simulation exercises to test systems; and

(d) identification and training of key members of Public Health Emergency Management Subcommittees and Public Health Emergency Rapid Response Teams (PHERRT).

In addition, having a public health emergency preparedness and response plan (PHEPR) is crucial. The PHEPR should include the layout of the coordinating structure, the mapping of risks and how to address and maintain the emergency response plan for relevant events, including the capacity to support operations at primary response level during a public health emergency. The PHEPR is the overarching plan and should be complemented by a PHEOC plan and an event- or incident-specific plan (ISP). The PHEOC plan guides the operations of the command and coordination centre, outlining standard operating procedures on how each functional area operates and how they work together; and the ISP is a plan developed to address high priority emergency events based on risk analysis and is always annexed to the PHEPR plan.

5.1 Establish a permanent public health emergency operations centre (command and control centre) for oversight of public health emergency preparedness and response activities

Response to public health events would be successful if there is a more, coherent, effective and efficient coordination of various actors representing a multisectoral team within the context of the One-Health approach. Ultimately, this will also help to reduce the impact of the event in the community. The International Health Regulations (IHR 2005) require that State Parties develop, strengthen and maintain their capacity to respond promptly and effectively to public health risks and public health emergencies.

Countries should establish the PHEOC, at least at the national level, to act as a command and control centre that enhances coordination and oversees public health emergency preparedness and response activities. To establish a PHEOC, countries should develop legislation or an executive directive to mandate and allow the health ministry or the public health agency to establish and manage a PHEOC. This mandate will then outline the ministry or the public health agency's roles and responsibilities, and lay out the coordination mechanisms with overall national disaster management resources, and a funding mechanism to enable the operations of the PHEOC. The PHEOC will then act as a command and control centre and be a hub for the coordination of information and resources to support incident or event management activities, thus ensuring a coordinated response to emergencies that involve health consequences and public health threats.

The PHEOC will need to develop the following essential elements so as to be fully functional in its support to emergency preparedness and response:

(a) plans and procedures for operations;

(b) telecommunication technology and infrastructure to enable timely communication;

(c) information system to support informed decision-making; and

(d) trained human resources.

The PHEOC will monitor events using various sources of data; facilitate and improve communication between public health and emergency management personnel; and facilitate coordination with multiple response partners. The PHEOC should feed into the National Disaster Risk Management EOC to manage escalated events of national magnitude. It is highly recommended that the PHEOC is positioned at the highest level where there is already an organ mandating the coordination of public health emergencies. The PHEOC is located in the office of the Chief Medical Officer in some countries and in the office of the Director for Health in others. In countries having a National Public

Health Institute, it is located in the office of the Director for Public Health Institutes. In most countries, the PHEOC reports to the Minister for Health.

During public health emergencies, the PHEOC, which is the command and control centre guided by the National PHEMC, is activated and functions as a centre for decision-making and the coordination of information and resources for strategic management of public health events and emergencies. The PHEOC uses the Incident Management System (IMS), which is a standardized approach to managing and coordinating the response by providing a common hierarchy for staff response. In the context of IDSR, the IMS is represented by the Public Health Emergency Management Committee (PHEMC) at strategic level, which will assemble during activation of PHEOC; as well as the National Public Health Emergency Management Subcommittees which are also present at the operational level. The IMS outlines the specific roles and responsibilities of responders during an event, while providing a common framework for government, the private sector and nongovernmental organizations to work seamlessly together. In IMS, each person is assigned a specific role and follows a set command structure. It can be staffed with additional teams of subject matter experts, analysts, logisticians and support staff depending on the situation at that particular time. The operational structure of PHEOC (command and control centre) can also be scaled up, which is essential for maintaining its effectiveness and it can be modular (i.e. can be partially or fully activated) depending on situational needs *(See WHO Framework for a Public Health Emergency Operation Centre).*

Most importantly, IMS should be functional at all levels of health system delivery (national, region/province and district). Once the IMS is activated during public health emergencies, it is important for the PHEMC to meet regularly (at least daily or weekly) to facilitate coordination, communication and information-sharing; adopt containment measures; and facilitate the deployment of the Public Health Emergency Rapid Response Team (PHERRT). During activation, the PHEOC will also help to ensure the flow of information horizontally and vertically to the respective departments, relevant sectors and partners, thus facilitating relief operations.

Having a command and control centre is essential for preparedness and response to public health events. If the resources are available, regions and districts will need to have PHEOCs, with basic facilities that support the direct coordination of preparedness and response to public health emergencies, facilitate real-time communication and information between various stakeholders at their levels, and ensure that there is a mechanism for sharing information with the national-level PHEOC. In some countries, however, similar existing coordinating structures or mechanisms currently exist at the subnational level (region/province and district) which also acts as command and control centres; i.e. the district PHEMC and the associated management subcommittees, which also use the same IMS structure of the PHEOC during public health emergencies. Such structures

should be used to continue supporting the coordination of preparedness and response activities, to ensure real-time communication and information-sharing between various actors at these levels and the national level.

When inactive, the PHEOC (command and control centre) usually reduces in size and respective members under various Public Health Emergency Response Management Subcommittees return to their respective working stations. The few staff remaining at the centre will then liaise with respective sections or departments to continue maintaining plans and procedures; conducting training and simulation exercises as well as routine and event-based surveillance activities; and maintaining the systematic database of the resources available, such as important phone numbers, names and addresses of important government and non-government officials, international bodies and NGOs.

5.2 Establish a district, regional, and national public health emergency management committee (PHEMC)

Public health emergency management committees (PHEMC) should be established at all levels – national, regional and district. PHEMC members across all levels should work closely with their counterparts to plan and monitor the implementation of public health emergency plans. These coordinating committees should operate at their respective levels and are composed of technical and non-technical members from the health and other sectors. The role of PHEMC is to develop and oversee the implementation of emergency preparedness strategies, action plans and procedures.

The PHEMC can also be referred to as a policy group. At the national level, the PHEMC provides policy direction on the implementation and operation of the national PHEOC and also provides oversight, policy and strategic guidance on the implementation of functional PHEOCs or similar coordination structures or mechanisms at the subnational levels.

The PHEMC committee will also mobilize funds for PHEOC development and sustainability. The PHEMC committee will provide oversight for PHEOC operations and, in the absence of pre-established mutual aid arrangements with other jurisdictions, it may also be the authority that handles requests for external material or financial assistance, particularly in complex, multisectoral or multijurisdictional emergencies.

5.2.1 Identify functions of the public health emergency management committee (PHEMC)

(a) Ensure coordination and integration of surveillance and response activities across all levels.

(b) Develop a national/regional/district emergency preparedness and response plan to manage all potential emergencies including disease outbreaks and detection of other emerging public health events or hazards; and clearly stipulate surge capacity to respond to public health emergency at district, regional or national level.

(c) Map available human and material resources: experts, logistics including distribution, finance etc.

(d) Periodically review and update the plan in response to any changes in technical, managerial or epidemiological situation or any other risk identified.

(e) Liaise with National Disaster Management Agency (NDMA) to ensure multisectoral preparedness and response.

(f) Establish a community communications plan for sharing information with communities before, during and after any public health emergency. The plan should include mapping of all communication channels--community radio, data on cellular and internet penetration, NGO/FBO networks, prearranged agreements with cellular companies, other platforms (women's groups etc.) that can be leveraged for reaching the public. The plan should also include liaison activities with relevant partners in multiple sectors including points of entry and other required reporting sites.

(g) Coordinate community risk mapping activities within the district and ensure that all reporting sites are aware of the use of thresholds for reporting acute outbreaks or events.

(h) Identify and mobilize resources for emergency prevention and control including procurement of response and communication supplies. There should also be a mechanism to monitor the use of resources before, during and after the emergency event.

(i) Ensure that emergency material stockpiles at the district/regional/national levels are monitored, procured and updated regularly.

(j) Enhance linkages with community-based surveillance focal persons to ensure flow of data for early detection of public health events.

(k) Coordinate training of community, health facility, and district/regional/national personnel in emergency preparedness and response.

(l) Ensure that there is periodic organization of emergency response simulation activities at the national, regional, district and community levels.

(m) Coordinate the post-emergency evaluation and plan to disseminate findings with the affected communities.

(n) Ensure provision of efficient administrative and financial management support including human resources; cash flow by estimating, tracking and approving response-related expenditure; monitoring and coordination of funding from all sources.

(o) Ensure that the facilities' communication technology and information system is ready to support any type of emergency.

(p) Oversee the activation of the national PHEOC and similar coordination structures at the subnational level (region/province and district), during public health emergencies. Furthermore, activation of the IMS structure; i.e., formation of Public Health Emergency Management Subcommittees and deployment of the Public Health Emergency Rapid Response Teams.

(q) Hold regular meetings to strengthen preparedness capacity (e.g., training health care workers (HCWs)) during periods when there are no public health emergencies.

5.2.2 Identify members of the Public Health Emergency Management Committees (PHEMC)

Organize the PHEMC to include a mix of representatives from the public, nongovernmental organizations (NGO) and private sectors to match the functions listed above. For example, in the district level committee, participants from the public sector may include:

(a) district administrator/coordinating director or equivalent;

(b) district police commissioner;

(c) district civic or community representative, municipal/district chief executive, mayor;

(d) district director of health services;

(e) district medical officer;

(f) medical superintendents-in charge of hospitals;

(g) district director of veterinary/agricultural services or equivalent;

(h) district public health nurse;

(i) district disease control officer or equivalent;

(j) district environmental health officer or equivalent;

(k) district education officer;

(l) district water officer;

(m) district engineer;

(n) wildlife officer;

(o) natural resources and veterinary experts;

(p) laboratory technician or laboratory technologist from the district laboratory (for both human and animals);

(q) district community development officer;

(r) immigration officer;

(s) officer responsible for risk communication;

(t) legal officer;

(u) senior military / national security officer;

(v) influential leaders - Members of parliament, tribal chiefs, religious leaders, etc.

NB: At the regional and national levels, an equivalent of the above should be used in order to ensure a more comprehensive multisectoral structure. At the national level, consider including directors from other key relevant ministries, heads of agencies, national health research institutes (human and animal). Members of the IHR National Focal Point should always be part of the national team.

From nongovernmental organizations with health care activities in the area, include representatives from:

(a) community health programs and faith-based health facilities;

(b) Red Cross, Red Crescent or similar agencies working in the area;

(c) local NGOs;

(d) civil society organizations; and

(e) UN organizations.

From the private sector, include representatives from:

(a) private health facilities;

(b) private laboratories;

(c) pharmacists or chemists;

(d) business community;

(e) research and training institutions; and

(f) professional associations.

NB: The PHEMC should have a chairperson; e.g., someone holding the highest political position in the district.

5.2.3 Public Health Emergency Management Committee (PHEMC) meetings

When there is no outbreak or any other public health event, the PHEMC should meet regularly, on a monthly or quarterly basis, in order to:

(a) review the national public health emergency preparedness and response plan;

(b) exchange information on risk monitoring. It should be emphasized that other relevant health sectors can equally benefit from information provided by the human health sector and vice versa. In some events, human cases can be the first indication of a threat to other sectors. For example, animal health services will be impacted by cases of Crimean-Congo haemorrhagic fever, as cases in humans constitute the primary indicator for viral circulation in animals as infection is asymptomatic in livestock. For instance, vaccination among livestock might be crucial if human cases of anthrax or rift valley fever have been detected as a signal of asymptomatic diseases among animals;

(c) review disease trends and updates on preparedness steps;

(d) review the level of preparedness at the beginning of each epidemic season (e.g., before the period when cases of meningitis increase);

(e) monitor stocks of equipment for event investigation and response;

(f) share the conclusions and recommendations of these meetings with respective committees at all levels; and

(g) organize simulation exercises/drills to test the effectiveness and efficiency of the EPR plans.

It should be noted that the PHEOC if already established will serve as a hub for coordinating these activities. If not, a similar coordination structure or mechanism will serve the same purpose.

During an *emergency or outbreak response*, the PHEMC should:

(a) meet as soon as the outbreak or event is established;

(b) conduct situational analysis and grade the level of the event;

(c) activate the PHEOC or similar coordinating structures at the national and subnational levels and deploy PHERRT to the field to investigate and respond to the event. It will also activate the Public Health Emergency Management Subcommittees (See 5.3 for a detailed description of part of the technical teams with their roles and responsibilities);

(d) assess the need for and request support from the higher level, if need be. For example, a district will request support from the regional or national EPR or Public Health Emergency Rapid Response Teams when necessary;

(e) meet at least daily at the beginning of an outbreak or event and weekly as the response continues;

(f) regularly review the outbreak response and take action to improve outbreak control actions as indicated;

(g) document and communicate outbreak response actions to the next higher level; and

(h) conduct an after-action review.

5.3 Establish Public Health Emergency Management Subcommittees at all levels

The Public Health Emergency Response Subcommittees are formed by the PHEMC to oversee the daily management of the public health emergencies. They consist of technical and non-technical teams, tasked with oversight of the daily management of the event/incident and provide feedback to the PHEMC committee for decision-making.

They are subdivided into technical and non-technical teams depending on their functions as shown in Table 5.1 below.

Table 5.1: Functions of Public Health Emergency Management Subcommittees

Subcommittee	Members (experts, organizations)	Description of tasks
Coordination/Management subcommittee	**Overall Chair EPR: (Permanent Secretary/Chief Director at national and subnational levels, appointed Government officials in the rank of Administrative Officials or similar)** **Example of members at the district level:** • District administrator / coordinating coordinator or equivalent • District police commissioner • District civic or community representative (for example, the district chief executive) • District director of health services • District medical officer • Medical superintendents-in charge of hospitals • District director of Veterinary/Agricultural services or equivalent • District public health nurse • District disease control officer or equivalent • District environmental health officer or equivalent • District education officer • District water officer • District engineer • Wildlife officer • Natural resources and veterinary experts • Laboratory technician or laboratory technologist from the district laboratory, both human and animal • District community development officer • Immigration officer • Officer responsible for risk communication	• Coordinate all aspects of the operations response, planning and management including: Selecting participating organizations and assign responsibilities • Design, implement and evaluate control interventions • Coordinate technical EPR subcommittees and overall liaison with partners • Submit daily situation report on the evolution of the outbreak • Manage information for the public and news media • Provide operational support including mobilization of resources • Ensure staff well-being, security

Subcommittee	Members (experts, organizations)	Description of tasks
	From nongovernmental organizations with health care activities in the area, include representatives from: • Community health programs and faith-based health facilities • Red Cross, Red Crescent or similar agencies working in the area • Local NGOs • Civil society organizations From the private sector, include representatives from: • private health facilities • private laboratories • pharmacists or chemists • business community • research and training institutions • professional associations	

(i) Finance and administration

Finance and Administration	Chair: PS at National level District level: District Administrator/Executive Officer/Planning and Budget Officer **Members:** • May include experienced health administrators, finance/accounts officers, budget officers and logisticians. Technical Staff -District Medical Officer or Medical Officer in Charge, Laboratorians	• Track expenditure, makes payments and provide administrative services • Ensure appropriate cash flow management, track material and human resources, monitor costs, prepare and monitor the budget and keep administrative records

(ii) Logistics

Logistics	Chair: Pharmacist/ Logistics Officer **Members:** • Supplies/ Stores assistants • Pharmacists or dispensers • Technical assistance from the Ministry of Health • Partners supporting logistics management	• Provide budget support/ funding for epidemic preparedness & response • Procure equipment and supplies • Maintain adequate stocks of supplies and equipment • Arrange for transport and communication systems • Liaise with other agencies for logistical support • Provide accountability for all the resources used during epidemic preparedness & response

(iii) Planning

Planning	**Chair: An appointed Government official in the rank of administrative official or similar)** **Members:** • Chairs of the all subcommittee • Appointed members from EPR committee	• Evaluate the situation (information gathering and analysis), evaluates available options and monitors resources.

(iv) Technical subcommittees

Subcommittee	Members (experts, organizations)	Description of tasks
Case management and infection prevention and control	**Chair:** Physician or physician assistant from Ministry of Health, or the district, regional or referral hospital Example of members at the district level: • District police commissioner • District director of health services • District medical officer • Medical superintendents-in charge of hospitals • District director of Veterinary/Agricultural services or equivalent • District public health nurse • District disease control officer or equivalent • District environmental health officer or equivalent • District education officer • District water officer • District engineer • Wildlife officer • Natural resources and veterinary experts • Laboratory technician or laboratory technologist from the district laboratory, both human and animal • District community development officer • Customs • Immigration officer From NGOs with health care activities in the area, include representatives from: • Community health programs and faith-based health facilities • Red Cross, Red Crescent or similar agencies working in the area • Local NGOs • Civil society organizations • From the private sector, involve participation from:	• Ensure the availability of guidelines and SOPs for case management and infection prevention and control in all health facilities • Strengthen isolation facilities and reinforces infection prevention and control measures • Conduct risk assessment of health care workers • Ensure that appropriate medical care is provided to patients • Provide ambulance services – collection of suspected cases from the community using the defined referral system • Collect data from all treatment facilities (if available) and submit it to the surveillance subcommittee • Ensure appropriate disinfection of homes and environments with suspected/ probable/ confirmed cases/ deaths of an infectious disease • Conduct safe burial of the dead from isolation facilities and community deaths • Ensure the training and refresher training of health workers in the isolation facility and other health facilities in the affected district

Subcommittee	Members (experts, organizations)	Description of tasks
	• private health facilities • private laboratories • pharmacists or chemists • business community • research and training institutions • professional associations	
Surveillance and Laboratory	**Chair:** Surveillance Officer or Epidemiologist (National/Regional/District levels) **Co-chair:** Laboratory Focal Person **Example of members at the district level:** • District police commissioner • District director of health services • District medical officer • Medical superintendents-in charge of hospitals • District director of Veterinary/Agricultural services or equivalent • District public health nurse • District disease control officer or equivalent • District environmental health officer or equivalent • District education officer • District water officer • District engineer • Wildlife officer • Natural resources and veterinary experts • Laboratory technician or laboratory technologist from the district laboratory, both human and animal • District community development officer • Immigration officer • Counsellors • Assembly man • Port Health officer From nongovernmental organizations with health care activities in the area, include representatives from: • Community health programs and faith-based health facilities • Red Cross, Red Crescent or similar agencies working in the area • Local NGOs • Civil society organizations From the private sector, include representatives from: • A representative from private health facilities • A representative from private laboratories	• Ensure the availability of all surveillance guidelines and tools in the health facilities • Ensure the use of the outbreak case definition • Conduct active case finding, case investigation, contact tracing and follow-up • Verify suspected cases/ alerts/ rumours in the community • Ensures proper filling of case investigation, contact tracing and follow-up forms • Ensure proper collection, packaging, transport, and testing of specimens from suspect/ probable cases/ deaths • Communicate test results to clinical services • Conduct data management and provides regular epidemiological analysis and reports • Train health personnel in disease surveillance • Ensure close linkage with burial, infection control and social mobilization groups.

Subcommittee	Members (experts, organizations)	Description of tasks
	• Pharmacists or chemists • Representatives of business community • Research and training institutions • Professional associations	
Risk Communication and Social Mobilization	**Chair:** Health promotion officer **Example of members at the district level:** • District police commissioner • District director of health services • District medical officer • Medical superintendents-in charge of hospitals • District director of Veterinary/Agricultural services or equivalent • District public health nurse • District disease control officer or equivalent • District environmental health officer or equivalent • District education officer • District water officer • District engineer • Wildlife officer • Natural resources and veterinary experts • Laboratory technician or laboratory technologist from the district laboratory, both human and animal • District community development officer • Immigration officer From nongovernmental organizations with health care activities in the area, include representatives from: • Community health programs and faith-based health facilities • Red Cross, Red Crescent or similar agencies working in the area • Local NGOs • Civil society organizations From the private sector, include representatives from: • private health facilities • private laboratories • business community • research and training institutions • professional associations	• Ensure the availability of risk communication materials and plans • Conduct rapid assessment to establish community knowledge, attitudes, practices and behaviour on prevailing public health risks/events • Organize sensitization and mobilization of the communities • Serve as focal point for information to be released to the press and public • Liaise with the different subcommittees, local leadership and NGOs involved in activities on mobilizing communities
Psychosocial support	**Chair:** Psychosocial Coordinator Members (National/Regional/District levels): • Counsellors • Mental Health clinicians • Clinical Psychologists	• Provide psychological and social support to suspected/ • probable/confirmed cases; affected families and communities

Subcommittee	Members (experts, organizations)	Description of tasks
	• Social workers • Technical assistance from the Ministry of Health • Partners supporting psychosocial services	• Provide wellness care and psychological support to the response team • Prepare bereaved families/ communities for burials • Prepare communities for reintegration of convalescent cases/ patients who have recovered
Water, Sanitation and Hygiene (WASH)	**Chair**: Environmental Health Inspector or Water engineer (National/Regional/District levels): **Members:** • Environmental Health technician or WASH Officer • Ministry of Public Work • Health Inspectors • Technical assistance from the Ministry of Health • Partners supporting WASH e.g. UNICEF	• Conduct environmental health risk assessment for the outbreak • Ensure provision of clean water • Improve water management at household and community level. • Plan for sanitation improvement campaign • Plan for improved hygiene practices including hand-washing, food hygiene and sanitation
8. Vaccination campaign	**Chair:** Child survival, EPI focal point, or Cold Chain Technician Members (National/Regional/ District levels): • MCH supervisor • Clinician in charger • Nurse in charge • Reproductive and child health coordinators • Partners supporting vaccination • e.g. WHO, UNICEF • Community leaders • Technical assistance from the Ministry of Health	• Identify high-risk groups during the outbreak that should be targeted for vaccination • Compute the targeted population for the vaccination campaign • Conduct micro-planning for all vaccination logistics including cold chain facilities, vaccine delivery and distribution, human resource needs, waste handling, social mobilization • Conduct the vaccination campaign and post vaccination campaign validation exercise

5.4 Establish Public Health Emergency Rapid Response Teams at all levels

A Public Health Emergency Rapid Response Team (PHERRT) is a technical, multidisciplinary team that is readily available for quick mobilization and deployment in case of emergencies to effectively investigate and respond to emergencies and public health events that present significant harm to humans, animals and environment irrespective of origin or source. PHERRT should be established at the district, regional and national levels. See Section 4.2 for the composition of the PHERRT.

Roles and responsibilities of the national, regional and district PHERRT

(a) Investigate rumours and reported outbreaks, verify diagnosis and other public health emergencies including laboratory testing;

(b) collect additional samples from new patients and old ones if necessary (human, animals, food, and water);

(c) conduct follow-up by visiting and interviewing exposed individuals, establish a case definition and work with community to find additional cases;

(d) assist in laying out mechanisms for implementing infection prevention and control measures;

(e) assist in generating a line list of cases and conduct a descriptive analysis of data (person, place and time) to generate hypothesis, including planning for a further analytical study;

(f) propose appropriate strategies and control measures including risk communications activities;

(g) establish an appropriate and coordinated risk communication system through a trained spokesperson;

(h) coordinate rapid response actions with national and local authorities, partners and other agencies;

(i) initiate implementation of the proposed control measures including capacity-building;

(j) conduct ongoing monitoring/evaluation of the effectiveness of control measures through continuous epidemiological analysis of the event;

(k) conduct risk assessments to determine if the outbreak is a potential PHEIC;

(l) prepare detailed investigation reports to share with PHEMC committee;

(m) contribute to ongoing preparedness assessments and final evaluation of any outbreak response;

(n) meet daily during outbreaks and quarterly when there is no outbreak; and

(o) participate in simulation exercises.

5.5 Risk mapping for outbreaks and other public health events

Vulnerability, risk assessment and mapping is used as an aid to preparedness to identify at-risk areas or populations, rank preparedness activities and engage with key policy and operational partners. This includes mapping and assessing risks (in the catchment area) with the potential to affect community health. Such mapping must address all acute health risks, and not be restricted to communicable diseases. The exercise should consider identification and mapping across all levels, from the national right down to the regional and district levels. For example, include evaluation of drinking water sources or food storage methods and animal breeding areas and movements.

This process should be ongoing and updated periodically. For example, once a year, assess those risks and record the information on a map. This is useful information when considering supplies, transport and other resource issues necessary for the response.

Countries may use the WHO Strategic Tool for Prioritizing Risks (STAR), which is a tool used to assess a wide range of hazards including the health consequences of natural or human-induced emergencies, the health events covered under IHR (zoonosis, chemical, radio-nuclear, food safety) and also events occurring in neighbouring countries or regions. The tool will assist the district or regional or national level to formulate priorities for the development of contingency

plans and specific responses, and also can be used to outline the potential needs to enhance national capacity in terms of preparedness and response (Strategic Tool for Addressing Risk, STAR, WHO, DRAFT Version 3.3.1 (2017/07/27). Countries may also use the 2008 Tripartite "Zoonotic Diseases: A Guide to Establishing Collaboration between Animal and Human Health Sectors at the Country Level", which is due to be updated and be a global document by the end of 2019 (https://www.oie.int/doc/ged/D12060.PDF).

5.6 Resource mapping

In preparing for outbreaks, there is need to undertake resource mapping to identify the available resources in every geographical area. This ensures prompt mobilization and distribution of such resources (both material and human) in an outbreak situation. Some of the resources can also be obtained from other sectors in the district or region or from development partners and NGOs at the respective levels.

5.7 Prepare an emergency preparedness and response plan

There should be all hazard plans developed for preparedness and response for national, regional and district levels. The plans at all levels should be in line with the overarching national preparedness and response plan for the health sector and consistent with the overall national policies, plans and emergency management principles. The purpose of this plan is to build the ability of the national and subnational levels to respond promptly when an outbreak or other public health event is detected.

This plan should:

(a) be based on risk assessments conducted through a multisectoral approach and should specify the resources available for emergency preparedness and response;

(b) take into consideration diseases with epidemic potential in the country, region, district, and neighbouring countries;

(c) take into account all other events (All hazard approach) and cover the IHR core capacity requirements of Annex 1 A. Core capacity requirement for surveillance and response (IHR 2005, Third edition);

(d) take into account point-of-entry activities for strengthening surveillance and response;

(e) lay out concept of operations (CONOPS) including clear lines of accountability, decision-making authorities and processes, procedures for activation /deactivation, call for assistance etc.;

(f) describe the surge capacity to respond to public health emergencies of national, regional and district concern;

(g) provide estimates of the population at risk for epidemic-prone diseases and other public health emergencies;

(h) clearly indicate for each suspected outbreak which reference laboratory will be used for confirmation;

(i) provide estimates of needed quantities of medicines, vaccines, supplies, laboratory reagents, and consumables for each epidemic-prone disease likely to occur;

(j) identify training needs and develop a training plan for all staff including Public Health Emergency Rapid Response Teams;

(k) describe the procedures and plans to relocate or mobilize resources to support response

(l) describes the procedures for risk communication; and

(m) the plan should be tested before implementation and periodically through simulation exercises.

NB: The plan should also include how to institutionalize health facility and community resilience building, and preventive interventions based on risk analysis and mapping.

Table 5.2: Elements of Emergency Preparedness and Response Plan

Key sections of the emergency preparedness and response plan should include:
1. designated coordination structures, including committees;
2. matrix of key stakeholders and partners supporting health activities [humans, animals (domestic, livestock and wildlife), environment, etc.] and roles and responsibilities;
3. epidemiology and surveillance activities, including health information management;
4. steps for carrying out a risk communication strategy including social mobilization;
5. operational actions according to expected phases of the epidemic;
6. laboratory specimen collection, handling, transportation, processing and information management;
7. case management, including treatments (antiviral, antimicrobial, decontamination, disinfection or others as indicated), infection prevention and control, isolation facilities, management of a mass casualty event;
8. pre- and post-exposure prophylaxis treatment;
9. immunization strategies;
10. rapid containment activities and additional methods if rapid containment fails;
11. psychosocial support for all affected, including community members and responders;
12. risk communication and social mobilization;
13. capacity-building including required training, sensitization meetings and simulation;
14. logistics including supply lists;
15. environment, water and sanitation;
16. decontamination of patients and environment, including management of dead bodies;
17. monitoring of the outbreak or event;
18. resource mobilization and procedures to relocate or mobilize resources to support response.

5.7.1 Set up contingency stocks of medicines, vaccines, reagents and supplies

Outbreaks and other public health emergencies require the rapid mobilization of resources such as vaccines, medicines and lab supplies. It is prudent to map out resources available so as to get the status of the stockpile with respect to pharmaceuticals, personal protective equipment (PPE) and other equipment to establish and preposition stockpiles of materials before an emergency occurs. While doing the mapping at national level for stockpiling, it is also important to know the regional and global stockpiles of various items which may be used during an outbreak.

As follow-up to the public health risk assessment activity, each level from districts to regions to national level should set up a contingency stock of medicines, vaccines, reagents and supplies to ensure prompt management of the first cases. For the subnational level, this is critical before support arrives from higher levels. Ensure that, there are also quick mechanisms for sending supplies from the central level. Also, regularly and carefully monitor the contingency stock in order to avoid shortages and expiry of medicines, vaccines, reagents and supplies. Examples of stock management tools are included in the annexes at the end of this section. The content of the contingency stock varies with the nature of epidemic-prone diseases and the risk of outbreak in the district. Risk assessment activities help to develop a list of minimum materials that should be stockpiled at the district and community levels. If all districts and community levels cannot be stockpiled with minimum materials, ensure that a designated point (health centre, district) is identified to ensure the quick release of these items when needed during an outbreak.

Partnerships with other implementing agencies such as NGOs, concerning stockpiles of appropriate medicines and vaccines and other materials, should be established in advance at all levels (national, regional and district).

A suggested list of contingency medicines and supplies is available in Annex 5A at the end of this section.

5.7.2 Conduct stock management for outbreak response

Maintain and preposition a sufficient stock of supplies and materials for responding to an outbreak or public health event before an outbreak occurs. These supplies should be stored in safe and adequate conditions as required.

Use an inventory checklist such as the one in Annex 5B to assess which supplies are already available for use during a response activity. If the supplies are already available, determine if they can be set

aside for use during a response. If they are not available, can they be purchased or requested through the national procurement system?

Periodically (e.g., every 4 months) make sure the supplies are dry, clean, not expired, not deteriorated and ready for use and that the mechanisms to assess them are available.

At a minimum, carry out the following tasks (relevant to each level) to estimate the necessary supplies, list what is available and plan the procurement of essential items for use in response.

(a) List all items needed to conduct surveillance, laboratory activities and response; items necessary for detecting and responding to priority diseases, conditions and events. Consider the availability of:
    (i) case definition posters; registers, including the line list register; and the required reporting forms/referral forms;
    (ii) laboratory reagents and supplies as well as diagnostic reagents and kits;
    (iii) Specimen collection, storage and transport kits including Triple Package containers,
    (iv) various surveillance and response guidelines for specific diseases as well as laboratory SOPs;
    (v) case management guidelines, medicines, supplies and other field intervention materials.
(b) Make an inventory and note the quantity of each item that is available.
(c) Complete and regularly update a stock balance sheet for each item.
(d) Observe expiry dates and practice best logistical practices for packing, shipping, storing and disposing of supplies and materials.
(e) Establish a critical or minimum quantity for each item that would need to be on hand for an investigation or response activity. Consider logistic and epidemiologic factors in establishing minimum quantities.
(f) Monitor the stock balances against the critical quantity established.
(g) Report regularly on the IDSR stock situation. See Annex 5C for an example of a stock item transaction and balance sheet.

5.7.3 Update the human resources available for response as well as other logistical support for response to public health events at all levels

(a) Update yearly list of all surveillance focal persons from all reporting sites including community level.

(b) Update roster of Public Health Emergency Rapid Response Teams

(c) Update other logistics like vehicles, fuel, phone cards etc.

(d) Update list of trained health staff including laboratory staff.

(e) Map laboratories that have sufficient quality control standards and meet the required standards to ensure reliable results, including availability of SOP which defines biosafety procedures for collecting, packaging, labelling, shipping, manipulating and discarding samples. Map also the specimen referral/transportation network including schedules; and where such networks are non-existent, create the mechanism to ensure prompt referral of specimens once an outbreak is suspected.

(f) Map and update isolation wards for the management of patients with highly infectious diseases including contact details, location, bed capacity, level of expertise, and type of patients/diseases that can be treated.

(g) Develop a patient referral system for highly infectious diseases, including transportation mechanisms.

(h) Take stock of risk communication SOPs at the different levels.

5.8 Annexes to Section 5

Annex 5A Essential stock items for responding to outbreaks

Annex 5B Stock situation report

Annex 5C IDSR stock item transaction and balance sheet

Annex 5D Assignments for the committee to develop the Epidemic Preparedness and Response plan

Annex 5A: Essential stock items for responding to outbreaks

Essential Stock items for Responding to Outbreaks				
Medicines	**Disinfectants, insecticides and rodenticides**	**Supplies**	**Vaccines**	**Equipment**
Ceftriaxone	**Disinfectants**	Auto-disable syringes	Meningitis vaccines AC, ACW135/ A, C, Y, W135, Meningococcal Conjugate Vaccine (MACV), Meningitis vaccines Conjugated	PPE
			Cholera vaccines	Body Bags
Ciprofloxacin	2% Chlorine		Tetanus antitoxin	Buckets
Diazepam	Bleach	Bed nets	Yellow fever vaccines	Camping kits
Doxycycline	Calcium hypochlorite	Personal Protective Equipment (See Annex 4C)	Rabies vaccine and immunoglobulin	Candles
Medicines for supportive care	Cresol	Laboratory supplies (See Annex 4B)	Other vaccines e.g. Flu vaccine	Computer
Erythromycin	Sodium hypochlorite			Containers
	Pesticides	Nasogastric tubes 2.7 mm OD, 38 cm		Cook-ware
	Cypermethrin	Nasogastric tubes 5.3 mm OD, 50 cm		Diesel
Oral rehydration salts	Malathion	Needles and syringes		Front lamp
Paracetamol	Permethrin	Intravenous giving sets different sizes)		GPS Receiver
Penicillin V	Rodenticides	Spoons		Kerosene lamp
Rehydration fluids:	Brodifacom	Sprayers (pump and		Lab: See Annex 4b
Ribavirin	Bromadione			Lamps
Ringer lactate				Maps
Oseltamivir				Kerosene
				Phones
				Plastic sheets
				Power generator
				Radio
				Sprayers

NB: Detailed list also available in Annex 4B

Annex 5B: Stock situation report

Surveillance and Emergency Preparedness and Response: Stock Situation Report
Year:
Report day (day/mm/yyyy): **Reporting period:**
Reporting site name:
District: **Province:** **Country:**

Item Description	Opening Stock	Quantity received	Total Stock	Quantity issued	Stock Balance	Observations, decisions and recommendations

Title, name and function of responsible officer:

Annex 5C: IDSR stock item transaction and balance sheet

IDSR Stock Item Transaction and Balance Sheet																	
Laboratory or Warehouse Name	Item Description (Name)	Presentation (Unit of purchase)	Expiry date	Manufacturer	Batch number	Location in store	Airway bill	Allotment number	Shipment & operations cost (USD)	Transaction Date (Day/Month/Year)	Quantity received	Donor or Supplier	Quantity issued	Destination or Beneficiary	Stock Balance	Signature (Name and function)	Observations/ Remarks
															0		Inventory
Use one sheet by stock item, and update the sheet every time any transaction takes place																	

Annex 5D: Assignments for the committee to develop the EPR plan

Task	Assigned member(s) from the committee
Designated coordination structures, including committees	
Organizational framework of key stakeholders and partners supporting health activities (human, animal, environment, etc.) and roles and responsibilities	
Epidemiology and surveillance activities, including health information management	
Define roles and responsibilities of members during an outbreak	
Develop the risk mapping	
Steps for carrying out a risk communication strategy including social mobilization	
Operational actions according to expected phases of the epidemic	
Laboratory specimen collection, handling, transportation, processing and information management	
Case management, including treatments (antiviral, antimicrobial, decontamination, disinfection or others as indicated), infection control, isolation facilities, management of a mass casualty event	
Pre- and post-exposure prophylaxis treatment	
Immunization strategies	
Rapid containment activities and additional methods if rapid containment fails	
Psychosocial support for all affected, including community members and responders	
Risk communication and social mobilization	
Capacity-building including required training, sensitization meetings and simulation	
Logistics including supply lists	
Environment, water and sanitation	
Decontamination of patients and environment, including management of dead bodies	
Monitoring of the outbreak or event	
Resource mobilization and procedures to relocate or mobilize resources to support response	

5.9 References

1. Geneva: World Health Organization; 2012 (WHO/HSE/GAR/ARO/2012.1; http://whqlibdoc.who.int/hq/2012/WHO_HSE_GAR_ARO_2012.1_eng.pdf, accessed June 2017).
2. Operational guidance on rapid risk assessment methodology. Stockholm: ECDC; 2011 (http://ecdc.europa.eu/en/publications/Publications/1108_TED_Risk_Assessment_Methodology_Guidance.pdf, accessed June 2017).
3. Standard Operating Procedures for AFRO Strategic Health

   Operations Centre (AFRO SHOC). Disease Surveillance and Response Programme Area. Disease Prevention and Control Cluster, December 2014
4. WHO African Regional strategy for health security and emergencies 2016–2020