Joint External Evaluation of

Sierra Leone

Mission Report November 2016

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List of abbreviations

AEFI	Adverse Events Following Immunization
AFENET	African Field Epidemiology Network
AFP	Acute Flaccid Paralysis
CDC	Centers for Disease Prevention and Control
cMYP	Comprehensive Multi Year Plan for Immunization
CPHRL	Central Public Health Reference Laboratory
DEHS	Directorate of Environmental Health Services
DHMT	District Health Management Team
DVDMT	District Vaccine Data Management Tool
EOC	Emergency Operation Center
EVD	Ebola Virus Disease
FCCC	United Nations Framework Convention on Climate Change
FETP	Field Epidemiology Training Program
FAO	United Nations Food and Agriculture Organization
GHSA	Global Health Security Agenda
GVAP	Global Vaccine Action Plan
HCAI	Health Care Associated Infection
IDSR	Integrated Disease Surveillance and Response
IHR	International Health Regulations
ILI	Influenza Like Illness
IMS	Incident Management System
INFOSAN	International Food Safety Authority Network
IPC	Infection Prevention and Control
IT	Information Technology
JEE	Joint External Evaluation
MAFFS	Ministry of Agriculture, Forestry and Food Security
MARPOL	International Convention for the Prevention of Pollution from Ships
MOU	Memorandum of Understanding
NFP	National Focal Person
OIE	World Organization for Animal Health
ONS	Office of the National Security
PHEIC	Public Health Emergency International Concern
PVS	Performance of Veterinary Services
POE	Point of Entry
REDISSE	Regional Disease Surveillance Systems Enhancement
RRT	Rapid Response Team
SARI	Severe Acute Respiratory Infection
SIA	Supplementary Immunization Activities
SITREP	Situation Report
SAICM	Strategic Approach to International Chemicals Management
SLMTA	Strengthening Laboratory Management Toward Accreditation
SLSB	Sierra Leone Standard Bureau
SOP	Standard Operating Procedure
WHA	World Health Assembly
WCO	WHO Country Office
WHO	World Health Organization

Executive Summary – Findings from the Joint External Evaluation

Since June 2007, countries have been making efforts to strengthen their core capacities as required by the IHR (2005). Under the Article 54 of the IHR (2005), countries were self-reporting annually their implementation status to World Health Assembly. IHR review committees and several expert panels recommended the review of events and voluntary independent external evaluation.WHO and partners developed the JEE tool based on available tools like the IHR monitoring questionnaires, the GHSA assessment tools and others.

Sierra Leone Team composition

The External JEE team was composed of: WHO (Regional Office-2, IST-1, WCO Ghana-1, Public Health England-3, US CDC-3, US Department of Agriculutre-1, Africa CDC- 1, MoH-Liberia- 1 and GIZ- 1.

Key best practices

- Strong political and technical leadership has facilitated significant progress in the recovery from the disruptions caused by the unprecedented EVD outbreak

- Several laws and legislation exist to support IHR implementation, including: The Public Health Ordinance, 1960; the Animal Act, 1949 ; the EPA Act, 2008; BUT, they need urgent revision and amendment

- The IHR Focal Person and the OIE delegate have been designated BUT both remain focal persons and not centres/units

- Strong collaboration and synergy between the in-country partners and stakeholders, especially in the human health sector

- A robust revitalized integrated disease surveillance and response (IDSR) system with country-wide coverage in human health, including indicator, event-based and syndromic surveillance systems

- Regular analysis of data and feedback at national and sub-national level

- Excellent national laboratory network system has been set up and is a best practice in the human health sector BUT NOT in the animal health sector

- Highly effective EOCs with clear plans, SOPs and a functioning multi-sectoral & multidisciplinary IMS and multi-sectoral and multi-disciplinary RRTs

- A foundational FETP programme has been established-Front Line FETP programme

- Commendable linkage of public health and security authorities

- Commendable capacity for the isolation, transport and referral of highly infectious patients and good collaboration with IPC programs for HCAIs

- Formal government arrangements and systems in place for risk communication with multi-sectoral and multi-stakeholder involvement

Key areas for improvement

- Revise laws and legislations to facilitate the implementation of IHR 2005-1960 Public Health Ordinance and the 1949 Animal Act.

- Fast track the approval of policies and strategies that are in draft form.

- Create a budget line for IHR and ensure funding for IHR core capacity building from domestic and international sources.

- Systematise and provide resources and direction to strengthen and sustain the IHR NFP and OIE functions with attention to appropriate staffing, effective SOPs specifying roles, relationships and responsibilities and supported by appropriate office, IT and logistics provision.

- Formulate a multi-hazard National Public Health (PH) emergency preparedness and response plan, underpinned on the one health and whole of government approach. The plan should be integrated with POEs contingency plans-airport, sea ports and designated major ground crossings.

- Strengthen cross border collaboration/initiatives and cross border community based surveillance as part of comprehensive PH Emergency Preparedness and Response plan

- Ensure tri hazards assessment-radiation, chemicals and infection risks

- Accelerate the implementation of the one health approach

- Gaps in veterinary and animal health compromise one health integrated risk assessment for early recognition of emerging or re-emerging zoonoses

- Improve coordination/collaboration between human and animal health lab systems

- Conduct joint (MoHS & MAFFS) formal prioritization of the zoonotic diseases list

- Develop strategies and plans for antimicrobial resistance detection, mitigation and stewardship

- Establish all the elements of a comprehensive national biosafety and biosecurity system for both human & animal health sectors

- Establish staffing norms and standards for health workforce in the human, animal and wild life sectors to ensure the availability of multidisciplinary teams at all relevant levels for preparedness and response to PH emergencies

- Scale up the FETP programme to cover intermediate and advanced courses for the national and district levels including veterinary and laboratory staff

- Conduct capacity assessments at all designated PoEs to guide the development of contingency plans for all designated PoEs (air, sea and ground) with clear timelines and milestones for assessing progress

- Establish coordination mechanism & develop strategic plan, guidelines & SOPs to facilitate capacity building for laboratory, syndromic surveillance & response to chemical hazards

- Improve capacity (human resources, laboratory) for the detection & response to radiation hazards.

Sierra Leone Scores

Capacities	Indicators	Score	
National Legislation, Policy, and Financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies, or other government instruments in place are sufficient for implementation of IHR.	2	
	P.1.2 The state can demonstrate that it has adjusted and aligned its domestic legislation, policies, and administrative arrangements to enable compliance with the IHR (2005)	2	
IHR Coordination, Communication, and Advocacy	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR.	2	
Antimicrobial Resistance	P.3.1 Antimicrobial resistance (AMR) detection	1	
	P.3.2 Surveillance of infections caused by AMR pathogens	1	
	P.3.3 Healthcare associated infection (HCAI) prevention and control programs	2	
	P.3.4 Antimicrobial stewardship activities	1	
Zoonotic Disease	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	1	
	P.4.2 Veterinary or Animal Health Workforce	1	
	P.4.3 Mechanisms for responding to zoonoses and potential zoonoses are established and functional	1	
Food Safety	P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination.	2	
Biosafety and Biosecurity	P.6.1 Whole-of-Government biosafety and biosecurity system is in place for human, animal, and agriculture facilities	1	
	P.6.2 Biosafety and biosecurity training and practices	2	
Immunization	P.7.1 Vaccine coverage (measles) as part of national program	3	
	P.7.2 National vaccine access and delivery	3	
National Laboratory System	D.1.1 Laboratory testing for detection of priority diseases	4	1
	D.1.2 Specimen referral and transport system	3	1
	D.1.3 Effective modern point of care and laboratory based diagnostics	3	1
	D.1.4 Laboratory Quality System	2	1
Real-Time Surveillance	D.2.1 Indicator and event based surveillance systems	4	
	D.2.2 Inter-operable, interconnected, electronic real-time reporting system	2	
	D.2.3 Analysis of surveillance data	4	
	D.2.4 Syndromic surveillance systems	4	
Reporting	D.3.1 System for efficient reporting to WHO, FAO and OIE	3	
	D.3.2 Reporting network and protocols in country	2	
Workforce Development	D.4.1 Human resources are available to implement IHR core capacity requirements	2	
	D.4.2 Field Epidemiology Training Program or other applied epidemiology training program in place	3	
	D.4.3 Workforce strategy	2	1
Preparedness	R.1.1 Multi-hazard National Public Health Emergency Preparedness and Response Plan is developed and implemented	1	
	R.1.2 Priority public health risks and resources are mapped and utilized.	1	
	R.2.1 Capacity to Activate Emergency Operations	4	
	R.2.2 Emergency Operations Center Operating Procedures and Plans	3	

Emergency Response Operations	R.2.3 Emergency Operations Program	4
	R.2.4 Case management procedures are implemented for IHR relevant hazards.	2
Linking Public Health and Security Authorities	R.3.1 Public Health and Security Authorities, (e.g. Law Enforcement, Border Control, Customs) are linked during a suspect or confirmed biological event	4
Medical Countermeasures and Personnel Deployment	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency	2
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency	1
Risk Communication	R.5.1 Risk Communication Systems (plans, mechanisms, etc.)	3
	R.5.2 Internal and Partner Communication and Coordination	4
	R.5.3 Public Communication	3
	R.5.4 Communication Engagement with Affected Communities	2
	R.5.5 Dynamic Listening and Rumour Management	3
Points of Entry (PoE)	PoE.1 Routine capacities are established at PoE.	2
	PoE.2 Effective Public Health Response at Points of Entry	1
Chemical Events	CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies.	2
	CE.2 Enabling environment is in place for management of chemical Events	2
Radiation Emergencies	RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies.	2
	RE.2 Enabling environment is in place for management of Radiation Emergencies	2

Note on Scoring of technical areas of the JEE Tool:

The Joint External Evaluation process is a peer to peer review. As such, it is a collaborative effort between host country experts and External Evaluation Team members. In completing the self-evaluation, the first step in the JEE process, and as part of preparing for an external evaluation, host countries are asked to focus on providing information on their capabilities based on the indicators and technical questions included in the JEE Tool.

The host country may score their self-evaluation or propose a score during the on-site consultation with the external team. The entire external evaluation, including the discussions around the scores, strengths/best practices, the areas which need strengthening/challenges, and the priority actions is done in a collaborative manner, with external evaluation team members and host country experts seeking agreement.

Should there be significant and irreconcilable disagreement between the external team members and the host country experts or among the external or among the host country experts, the External Evaluation Team Lead will decide on the final score and this will be noted in the Final Report, along with the justification for each party's position.

PREVENT

National Legislation, Policy, and Financing

Introduction

The IHR (2005) provide obligations and rights for States Parties. In some States Parties, implementation of the IHR (2005) may require new or modified legislation. Even if new or revised legislation may not be specifically required, States may still choose to revise some regulations or other instruments to facilitate IHR implementation and maintenance in a more effective manner. Implementing legislation could serve to institutionalize and strengthen the role of IHR (2005) and operations within the State Party. It can also facilitate coordination among the different entities involved in their implementation. See detailed guidance on IHR (2005) implementation in national legislation at (http://www.who.int/ihr/legal_issues/legislation/en/index.html). In addition, policies which identify national structures and responsibilities as well as the allocation of adequate financial resources are also important.

Target

States Parties should have an adequate legal framework to support and enable the implementation of all their obligations and rights to comply with and implement the IHR (2005). In some States Parties, implementation of the IHR (2005) may require new or modified legislation. Even where new or revised legislation may not be specifically required under the State Party's legal system, States may still choose to revise some legislation, regulations, or other instruments to facilitate their implementation and maintenance in a more efficient, effective, or beneficial manner.

State parties should ensure provision of adequate funding for IHR implementation through national budget or other mechanism.

Sierra Leone Level of Capabilities

The country has legislation and several regulations and administrative documents that govern public health surveillance and response. Examples include: The Public Health Ordinance 1960, the Radiation Protection Act 2012, the Animal Disease Ordinance 1949, the Environmental Protection Act 2008, and the Food Safety Act 2015. Secondly, a rapid assessment of the Public Health Act was done in Dec 2015; Frameworks between MoHS and MAFFS in the context of EVD are in existence; IHR/GHSA One Health Coordination structure already proposed; the Public Health Ordinance is currently being revised to incorporate provisions that will facilitate IHR implementation; The Animal Disease Ordinance (1949) was revised but it is still in a draft form; MoUs between Sierra Leone, Liberia and Republic of Guinea exist to cover EVD; Specific MOUs signed between Kambia and Koinadugu districts with their counterparts in Guinea for information sharing and joint planning and response; Discussions are ongoing to develop further MoUs between the rest of the districts and their counterparts in Guinea and Liberia.

Recommendations for Priority Actions

1. Hasten review of Public Health ordinance and develop their policy guidelines
2. Review other laws touching on IHR 2005 implementation and develop their policy guidelines
3. Sensitize relevant stakeholders on this law
4. Assess EPA and MAFFS
5. Improve/update/develop MoUs & other cross border bilateral agreements to make comprehensive, beyond EVD
6. Improve inter-sectoral collaboration

Indicators and Scores

P.1.1 Legislation, laws, regulations, administrative requirements, policies, or other government instruments in place are sufficient for implementation of IHR

==**Score 2:** Assessment of relevant legislation, regulation, administrative requirements, and other government instruments for IHR (2005) implementation has been carried out==

Strengths/ Best Practices

Legislation, regulations, policies in place

IHR desk review conducted in December 2015 recommended review of legislation, policies, and regulations for IHR

The animal health act also under review

MOUs exist with Guinea and Liberia

Cross-border collaboration tested in 2 out of 7 districts

District to prefecture MOUs operationalize

Areas which need strengthening/Challenges

Some legislation not yet reviewed

Hastening revision of public health ordinance and other relevant laws

Developing requisite government policies

Finalizing the animal health act

Collaboration across government sectors not seamless

P.1.2 The state can demonstrate that it has adjusted and aligned its domestic legislation, policies, and administrative arrangements to enable compliance with the IHR (2005)

==**Score 3:** The country can demonstrate the existence and use of relevant laws and policies in the various sectors involved in the implementation of the IHR==

Strengths/ Best Practices

The public health ordinance is under review

- There is evidence of use of existing legislation and policies including actions at PoEs, cross-border collaboration, border screening

- There is good inter-ministerial collaboration

- Review of the existing legislation, policies and regulations conducted in December 2015

- The IHR/GHSA coordination mechanism being put in place

Areas which need strengthening/Challenges

Areas that need strengthening

- International engagement with neighboring countries require involvement of other government agencies

- Attaining regional consensus is a challenge

Relevant Documentation

- Public Health Ordinance (1960): (http://awoko.org/2015/08/11/sierra-leone-news-1960-public-health-act-requires-urgent-review-madina-rahman/)
- Draft Food Safety Act
- Animal Disease Ordinance (1949)
- Environmental Protection Act (2008)
- Fisheries Products Act (2014)\; Available at (http://wahis_oie.int)
- IHR Core Capacity desk review report of December 2015
- Kambia-Forecariah cross-border collaboration MoU

IHR Coordination, Communication, and Advocacy

Introduction

The effective implementation of the IHR requires multi-sectoral/multidisciplinary approaches through national partnerships for effective alert and response systems. Coordination of nation-wide resources, including the designation of an IHR NFP, which is a national center for IHR communications, is a key requisite for IHR implementation.

Target

The NFP should be accessible always to communicate with the WHO IHR Regional Contact Points and with all relevant sectors and other stakeholders in the country. States Parties should provide WHO with contact details of NFPs, continuously update and annually confirm them.

Sierra Leone Level of Capabilities

Sierra Leone has yet to establish a fully competent National Focal Point (NFP) fully compliant with the International Health Regulations (IHR).

It was noted, however, that there is evidence of capacity for a move towards creation of an IHR compliant NFP. Coordination between ministries through the Public Health Emergency Operations Centre (PHEOC) and the Public Health Emergency Medical Committee (PHEMC) is in place, although Standard Operating Procedures (SOPs) for the NFP function are not yet written.

The NFP could be located within the PHEOC. The NFP may reasonably be seen as a function of the PHEOC and consideration should be given to locating it within the PHEOC site and administration.

There may have been need for clarification that the NFP is a function rather than a person; and that the function is to provide a single authoritative national portal of communication to WHO by the Department of Health, of timely epidemiological summaries and risk assessments of events of Public Health concern to neighbouring states and the wider international community.

There is some evidence that communication and joint risk assessment between human and animal health needs to be strengthened.

It was not apparent that risk assessments under NFP and IHR/GHSA framework is at present tri-hazard - that is routinely considers chemical and radiation hazards in addition to infection hazards.

A major concern regarding the NFP mandates was voiced, but during the assessment the hosts concluded that fresh thinking was required focusing on the outcome of achieving a working NFP by jointly working across departments, rather than being constrained by undue emphasis on inter departmental mandates.

An example of the need for further development of the Sierra Leone NFP was discussed. There was an outbreak of Rift Valley fever in Liberia and on the border. It was reported that there had been 28 human deaths. A Liberian and Sierra Leone team was reported to have jointly examined this outbreak, but it was unclear if this had been communicated to WHO by the Sierra Leone NFP with the level of completeness and coherence required for full compliance with International Health Regulations.

It was noted that establishing the NFP was also consistent with the Regional Disease Surveillance Systems Enhancement (REDISSE) (http://www.projects.worldbank.org/P154807).

It was agreed that the NFP might consider jointly working with a wider area of government activity like education and communication. There is a need to systematise and set up a functioning NFP. Further, weakness of veterinary and animal health surveillance compromises one health (human and animal) integrated risk assessment for early recognition of emerging or re-emerging zoonoses. Finally, there is a need to ensure a tri hazards approach—radiation and chemicals as well as infection risk assessment.

Recommendations for Priority Actions

1. Set up an NFP within the PHEOC supported by SOPs
2. Strengthen veterinary and animal health joint working and event surveillance (One Health)
3. Commence regular meeting of the NFP with all line ministries and key agencies
4. Start tri hazards (chemicals, radiation, and infection) surveillance and risk assessment within the NFP
5. Build technical capacity for NFP function by training technical people on IHR implementation areas

Indicators and Scores

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

Score 2: Coordination mechanism between relevant ministries is in place
National Standard Operating Procedures (SOPs) or equivalent exists for the coordination between IHR NFP and relevant sectors

Strengths/ Best Practices
Highly effective PHEOC in place with proven competence in managing EVD outbreak

Areas which need strengthening/Challenges
Very weak veterinary and animal health capacity needs priority investment and development with integration with human health within a One Health framework.

Relevant Documentation
- Public Health Ordinance (1960): (http://awoko.org/2015/08/11/sierra-leone-news-1960-public-health-act-requires-urgent-review-madina-rahman/)

- Animal Disease Ordinance (1949)

- Environmental Protection Act (2008)

- Food Safety Act (2015)

- IHR Core Capacity desk review report of December 2015

- Kambia-Forecariah cross-border collaboration MoU

Antimicrobial Resistance

Introduction

Bacteria and other microbes evolve in response to their environment and inevitably develop mechanisms to resist being killed by antimicrobial agents. For many decades, the problem was manageable as the growth of resistance was slow and the pharmaceutical industry continued to create new antibiotics.

Over the past decade, however, this problem has become a crisis. The evolution of antimicrobial resistance (AMR) is occurring at an alarming rate and is outpacing the development of new countermeasures capable of thwarting infections in humans. This situation threatens patient care, economic growth, public health, agriculture, economic security, and national security.

Target

Support work being coordinated by WHO, FAO, and OIE to develop an integrated and global package of activities to combat antimicrobial resistance, spanning human, animal, agricultural, food and environmental aspects (i.e. a one-health approach), including: a) Each country has its own national comprehensive plan to combat antimicrobial resistance; b) Strengthen surveillance and laboratory capacity at the national and international level following agreed international standards developed in the framework of the Global Action Plan, considering existing standards and; c) Improved conservation of existing treatments and collaboration to support the sustainable development of new antibiotics, alternative treatments, preventive measures and rapid, point-of-care diagnostics, including systems to preserve new antibiotics.

Sierra Leone Level of Capabilities

Worldwide, decisive, and comprehensive action is needed to enhance infection prevention and to prevent the emergence and spread of AMR, especially among drug-resistant bacteria. Sierra Leone has three national reference laboratories: the CPHRL, the MOHS-CHINA P3 Lab, and the TB Reference Laboratory. The CPHRL will be the designated laboratory for AMR detection and reporting. HCAI sentinel sites have not yet been set up. There is no mention of "AMR pathogens" in the National Health Laboratory Strategic Plan 2016-2020. No national plan for surveillance of infections caused by AMR pathogens exists. Policy, guidelines and SOPs for IPC are available and in use. No national guidance on appropriate antibiotic use. Poor enforcement of pharmacy board regulations.
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Recommendations for Priority Actions

1. Support the implementation of the National Health Laboratory Strategic Plan 2016-2020 and the GHSA 5-year Road Map for the advancement of in-country AMR laboratory capacity.
2. Ensure reporting of AMR is incorporated in MoHS pathogen reporting systems with plans/procedures for sharing reports for action and strategic planning.
3. Create monitoring and evaluation framework to ensure routine assessment, data management, analysis, reporting in AMR
4. Conduct survey on antibiotic use.
5. Develop action plan to address gap in sustainable adequate isolation capacity tertiary hospitals

Indicators and Scores

P.3.1 Antimicrobial Resistance (AMR) Detection

Score 1: No national plan for detection and reporting of priority AMR pathogens has been approved

Strengths/ Best Practices
AMR plan is included in 5-year GHSA roadmap

Areas which need strengthening/Challenges
There is a need to strengthen the detection capacity. Secondly, the National AMR Reference Lab has not yet been established. Thirdly, the National Health Laboratory Strategic Plan 2016-20 does not address AMR. Finally, there is a need to allocate funding for AMR surveillance.

P.3.2 Surveillance of infections caused by AMR pathogens

Score 1: No national plan for surveillance of infections caused by priority AMR pathogens has been approved

Strengths/ Best Practices
- AMR capacity improvements are included in the 5-year GHSA plan. Hospitals have already been selected for designation as AMR sentinel surveillance sites

Areas which need strengthening/Challenges
- No current surveillance
- No national plan
- No funding
- Limited expertise

P.3.3 Healthcare associated infection (HCAI) prevention and control programs

Score 2: National plan for HCAI programs has been approved

Strengths/ Best Practices
- There are trained IPC professionals in all tertiary hospitals

- There is a functioning IPC policy, operational plan, and SOPs at all health facilities

- There is a national plan for HCA

Areas which need strengthening/Challenges
- Designate facilities to conduct HCAI prevention programs

P.3.4 Antimicrobial stewardship activities

Score 1: No national plan for antimicrobial stewardship has been approved

Strengths/ Best Practices
Essential treatment guidelines exist/are in use.

Areas which need strengthening/Challenges
- No national guidance on appropriate antibiotic use in man

- Weak capacity for improving antibiotic prescribing and consumption in man because antibiotics are available without prescription

- No regulation of antibiotic use in animals

Relevant Documentation

- GoSL National Health Laboratory Strategic Plan 2016-2020

- National IPC Policy V1 (2015 - approved)

- WHO/MoHS Isolation Capacity Report, September 2016

Zoonotic Disease

Introduction

Zoonotic diseases are communicable diseases and microbes spreading between animals and humans. These diseases are caused by bacteria, viruses, parasites, and fungi that are carried by animals and insect or inanimate vectors may be needed to transfer the microbe. Approximately 75% of recently emerging infectious diseases affecting humans is of animal origin; approximately 60% of all human pathogens are zoonotic.

Target

Adopted measured behaviours, policies and/or practices that minimize the transmission of zoonotic diseases from animals into human populations.

Sierra Leone Level of Capabilities

In Sierra Leone, the zoonotic diseases/ pathogens that were identified as being of greatest public health concern are: Influenza due to new subtype, Ebola, Monkey pox, Plague, Rabies, Yellow Fever, Lassa fever and Anthrax.

However, the prioritized diseases were not determined jointly between human and animal health. In addition, the country has no "One Health" policy and needs to strengthen existing surveillance systems for prioritized zoonoses.

The challenges in this area include: the limited and diminishing capacity in animal health (there is a limited workforce and the only Central Veterinary laboratory has not been functional for three years and needs a complete refurbishment); the lack of zoonotic surveillance systems; and no information sharing between human and animal health.

Overview of capabilities

There is a disparity between human and animal health surveillance systems that are in place; while human public health surveillance effectively tracks the prioritized zoonotic diseases/pathogens, the animal health system lacks a surveillance system.

There is a diminished veterinary or animal health workforce and this is an issue for Sierra Leone.

There are no established mechanisms for coordinated response to outbreaks of zoonotic diseases by human, animal, or wildlife sectors.

Recommendations for Priority Actions

- Build and develop the capacity for animal health and veterinary public health including human resources and organisational structure
- Implement One Health with joint planning, data/information sharing and joint response
- Strengthen surveillance for zoonoses with the development of country guidelines
- Strengthen technical capacity for animal health including technical capacity development programs
- Strengthen animal health clinical and laboratory services

Indicators and Scores

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

Score 1: No zoonotic surveillance systems exist

Strengths/ Best Practices

Sierra Leone has identified the following areas as strengths:

- Partnerships between MOHS, MAFFS and wildlife specialists – Metabiota
- Mechanism in place to identify priority zoonotic diseases that pose a public health risk (IDSR)
- EVD, monkey pox, rabies, avian influenza, anthrax covered in IDSR – human health surveillance
- Zoonotic surveillance system in MAFFS
- Rabies task force in place
- There is training in controlling zoonotic disease in animal populations
- Estimates of animal populations for 2013 are available

Areas which need strengthening/Challenges

There are several areas which need strengthening to establish surveillance systems for priority zoonotic diseases/ pathogens in Sierra Leone:

- There is currently no "One Health" policy
- No mechanism currently in place for information sharing between animal and human health public health laboratories either on a regular basis or when there is an outbreak situation
- No list of priority zoonotic diseases for which control policies exist
- FETP does not include a vet-epi component
- No periodic communication such as a bulletin on animal health
- Reports on zoonosis from animal health are not shared with MOHS
- Human and animal health laboratories are not linked

P.4.2 Veterinary or Animal Health Workforce

Score 1: Country has no animal health workforce capacity capable of conducting one health activities.

Strengths/ Best Practices

The veterinary and animal health workforce is much diminished in Sierra Leone and the score for this indicator reflects this current state of affairs.

However, the country has identified the following strengths:

- N'Jala University offers animal science and production courses
- Environmental Health Inspectors training at N'Jala University has a Veterinary Public Health training component

Areas which need strengthening/Challenges

A major challenge is that there is no arrangement in place for sustained recruitment of animal health specialists into the Public Health Service.

Several areas need to be strengthened including:

- Animal Science and Production course at N'Jala University does not cover Veterinary Public Health
- The country has a huge shortage of animal health specialists
- The FETP training does not include animal health specialists
- The actual animal population in the country is not established

P.4.3 Mechanisms for responding to zoonoses and potential zoonoses are established and functional

Score 1: No mechanism in place

A mechanism for responding to infectious zoonoses and potential zoonoses has not been established. There is no national policy or plan for responding to zoonotic events. The limited human resource capacity in animal health is critical.

Strengths/ Best Practices

There are several elements identified as potential strengths and these are:

- Zoonotic diseases are part of the list of ISDR priority diseases
- The country has trained national and district multidisciplinary RRTs that include animal health specialists
- Rabies task force is set up
- Multi-sectoral PHEMC has been established to coordinate response to public health events that include zoonoses
- IHR/GHSA One Health organogram is under development
- Ad hoc collaboration between animal and human health specialist in response to rabies case in Port Loko district
- The multi-sectoral RRTs were identified as an area of best practice

Areas which need strengthening/Challenges

The main areas which need strengthening are:
- Limited human resource capacity in animal health
- Lack of an information sharing mechanism for zoonoses
- No policy guidelines or Memorandum of Understanding for multi-sectoral response to zoonoses
- The One Health approach is not developed

The main challenges identified were:
- Poor workforce policy in the animal sector (understaffing and poor remuneration)
- Poor Veterinary clinic network
- Inadequate laboratory system

Relevant Documentation

- District weekly IDSR bulletin
- Mailing lists for sharing SITREP during EVD outbreak
- Mailing lists for sharing weekly epidemiological bulletin
- REDISSE work plan and proposal
- RRT Guidelines and SOPs
- RRT training manual
- The Animal Welfare and Protection Bill, 2016
- The Animal Diseases Act of Sierra Leone. 5th draft. Sept 2015

Food Safety

Introduction

Food and waterborne diarrhoeal diseases are leading causes of illness and death, particularly in less developed countries. The rapid globalization of food production and trade has increased the potential likelihood of international incidents involving contaminated food. The identification of the source of an outbreak and its containment is critical for control. Risk management capacity with regard to control throughout the food chain continuum must be developed. If epidemiological analysis identifies food as the source of an event, based on a risk assessment, suitable risk management options that ensure the prevention of human cases (or further cases) need to be put in place.

The Government of Sierra Leone has established policies and regulations (Public Health Ordinance (1960), Fisheries Management Act, (1994), Fishery product regulations (2007)….) to provide a platform for food safety control and surveillance and response capacity for food and water borne disease risk or events. In this regards, provisions in the Public Health Ordinance of 1960, section 109 and 110, give authority to the Directorate of Environmental Health Services (DEHS) of the Ministry of Health and Sanitation (MOHS) the authority to manage Food safety control in the country. This responsibility is put in place by the head of DEHS' Food Safety Unit who coordinates and manages the safety of food supplies to service providers, consumers and export markets. At district level, the District Environmental Health Superintendent coordinate the process.

However, the country does not have a comprehensive food safety legislation in place, but rather, fragmented food safety standards for different food units, and so far, the country is also using Codex Alimentarius provisions as guideline.

Furthermore, there is also lack of proper coordination among all stakeholders even if MOUs among stakeholders exist but are not really enforced. Currently, there is no sanitary and phytosanitary (SPS) committee in the country to link up with international bodies. In this framework, mechanisms for multi-sectorial collaboration for a rapid response to food safety emergencies and outbreaks of foodborne diseases have not yet been established. Thus, recently, during the cholera outbreak in 2012, a cholera task force was formed to address the emergency and to manage the disposal of food items unfit for consumption, a committee involving keys stakeholders has been set up at the Office of National Security, and has validated SOPs for the management and disposal of food items unfit for human consumption.

To durably address such a situation, the government has taken a new initiative to develop a Food Safety Act which will lay down the establishment of a National Food safety authority. This new entity will be devoted to ensure the multi-sectorial collaboration of all stakeholders and to coordinate their interventions.

In the meantime, an emergency operation center (EOC) providing a platform for collaboration of stakeholders has been created to coordinate the surveillance and response to disease outbreaks and other public health events. In this context, Rapid Response Teams (RRTs) including, Food safety personals, have been formed at district and national levels and trained to respond to outbreaks and other public health events. This represents a valuable tool and an opportunity to enforce food safety management, thus, provisions should be taken to include foodborne outbreaks surveillance and response into their intervention tools.

Major stakeholders include the following national institutions and technical international partners:
- Ministry of Health and Sanitation (MOHS) / Directorate of Environmental Health Services (DEHS)
- Ministry of Trade and Industry/Sierra Leone Standard Bureau (SLSB):
- MAFFS, Directorate of Livestock and Veterinary Services
- Ministry of Fisheries and Marine Resources

- Customs and Immigration
- Office of National Security
- FAO and WHO

Target

State parties should have surveillance and response capacity for food and water borne disease risk or events. It requires effective communication and collaboration among the sectors responsible for food safety and safe water and sanitation.

Sierra Leone Level of Capabilities

- The Government of Sierra Leone is working to establish a mechanism for multi-sectoral collaboration to ensure rapid response to food safety emergencies and outbreaks of foodborne diseases
- Food safety staff have been nominated as part of multi-sectorial RRTs and trained to respond to public health emergencies including potential food-related events.
- The Government of Sierra Leone is yet to put in place an effective coordination mechanism among stakeholders through the establishment of a National Food Safety Authority, to join the International Food Safety Authority Network (INFOSAN).

Recommendations for Priority Actions

1. Establish an interagency coordination platform/mechanism to ensure strong cooperation among all food safety stakeholders in the country to facilitate the implementation of the food safety programme.
2. Accelerate the Parliamentary ratification of the Food Safety Act and establish food safety standards.
3. Establish a National Food Safety Authority and sanitary court
4. Develop and disseminate guidelines and training programmes for surveillance, response, diagnostic laboratory testing for food safety.
5. Finalise and disseminate the standard operating procedure (SOP) for the disposal of unfit food items for human consumption.

Indicators and Scores

P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination:

Score 2: Focal points are identified in relevant stakeholders (food safety sector, human health sector, surveillance and response staffs, animal health sector, key laboratories)

Strengths/ Best Practices

- Sierra Leone has national food safety standards available for fisheries
- RRTs have been nominated at district and national levels for training of food safety related events
- Cholera task force formed in 2012 for rapid information exchange between stakeholders / relevant sectors during suspected foodborne disease outbreak investigations
- SOPs drafted on disposal of food items unfit for human consumption
- Inclusion of food safety personnel in RRTs

Areas which need strengthening/Challenges

- To develop food safety standards for foods other than fish
- Food safety control management systems not implemented
- Operational links are not established between surveillance, response, food safety, animal health and laboratories
- No risk profiling of food safety problems
- Mechanism for communication between food safety stakeholders not yet functioning
- No risk communication mechanism and materials in place across the farm-to-fork continuum
- Inadequate coordination among stakeholders
- Lack of support from partners

Relevant Documentation

- Public Health Ordinance of 1960, section 109 and 110
- IDSR technical guidelines
- TORs of Public Health Emergency Management Committee
- Fishery Products Regulations in 2007
- Food Safety Act in 2015
- Standards Act 12, 1996, Registration on Food Establishment, Street Foods, Export & Imports

Biosafety and Biosecurity

Introduction

Working with pathogens in the laboratory is vital to ensuring that the global community possess a robust set of tools—such as drugs, diagnostics, and vaccines—to counter the ever-evolving threat of infectious diseases.

Research with infectious agents is critical for the development and availability of public health and medical tools that are needed to detect, diagnose, recognize, and respond to outbreaks of infectious disease of both natural and deliberate origin. At the same time, the expansion of infrastructure and resources dedicated to work with infectious agents have raised concerns regarding the need to ensure proper biosafety and biosecurity to protect researchers and the community. Biosecurity is important in order to secure infectious agents against those who would deliberately misuse them to harm people, animals, plants, or the environment.

Target

A whole-of-government national biosafety and biosecurity system is in place, ensuring that especially dangerous pathogens are identified, held, secured and monitored in a minimal number of facilities according to best practices; biological risk management training and educational outreach are conducted to promote a shared culture of responsibility, reduce dual use risks, mitigate biological proliferation and deliberate use threats, and ensure safe transfer of biological agents; and country-specific biosafety and biosecurity legislation, laboratory licensing, and pathogen control measures are in place as appropriate.

Sierra Leone Level of Capabilities

Biosecurity & biosafety were underappreciated until the EVD event, which stimulated considerable activity and attention directed most urgently toward enhancing biosafety for health workers. But the ongoing presence of partner laboratories highlighted disparities in biosafety and biosecurity training and facilities for laboratory workers. Initial lab efforts were aimed at research/reference facilities and now clinical laboratories are receiving remedial attention. There is no system in place to identify, hold, secure and monitor dangerous pathogens. Biological risk management training and educational outreach are not conducted to promote a shared culture of responsibility, reduce dual use risks, mitigate biological proliferation and deliberate use threats. There is no system in place for safe transfer of biological agents; and country-specific biosafety and biosecurity legislation, laboratory licensing, and pathogen control measures are non-existent. There are no elements of a comprehensive national biosafety and biosecurity system in place. The country has conducted a training needs assessment and identified gaps in biosafety and biosecurity training but has not yet implemented comprehensive training or a common training curriculum. Training needs which have been identified and begun to be addressed include: bio-risk management training for regional lab personnel, pre- and in-service training for medical lab personnel, and IPC trainings for health workers. There is a general lack of awareness among the laboratory workforce of international biosafety and biosecurity best practices for safe, secure, and responsible conduct. Country does not yet have sustained academic training in institutions that train those who maintain or work with dangerous pathogens and toxins.

Recommendations for Priority Actions

1. Establish/enact legislation /regulations on biosafety and biosecurity
2. Develop national guidelines on biosafety and biosecurity
3. Establish a regulatory framework for laboratory practice in line with the National Laboratory Strategy
4. Ensure implementation of the Strengthening of Laboratory Management Towards Accreditation (SLMTA) Program as a quality improvement process

Indicators and Scores

P.6.1 Whole-of-Government biosafety and biosecurity system is in place for human, animal, and agriculture facilities

Score 1: No elements of a comprehensive national biosafety and biosecurity plans are in place.

Strengths/ Best Practices

There are guidelines on laboratory biosafety in various documents including Human Health and Safety Policy. Appropriate security measures are in place to minimize potential inappropriate removal or release of biological agents at CPHRL and Lassa Fever Lab. Policy on sample referral is being developed. Health and Safety policy is disseminated across the districts. A best practice is the good ongoing collaboration with the IPC program on addressing issues of HCAIs.

Areas which need strengthening/Challenges

There is no mechanism for monitoring and developing an updated record and inventory of pathogens within facilities that store or process dangerous pathogens and toxins. There is no legislation or regulations on biosecurity. The country has no regulatory body for licensing laboratories. Guidelines on laboratory biosafety that exist in various documents do not address animal health. Regional labs do not have access controls to minimize potential inappropriate removal or release of biological agents. Challenges include inadequate leadership and inadequate funding to support the sector, as well as too many partner parallel programs without collaboration or coordination.

P.6.2 Biosafety and biosecurity training and practices

Score 2: Country has conducted a training needs assessment and identified gaps in biosafety and biosecurity training but has not yet implemented comprehensive training or a common training curriculum; General lack of awareness among the laboratory workforce of international biosafety and biosecurity best practices for safe, secure and responsible conduct; Country does not yet have sustained academic training in institutions that train those who maintain or work with dangerous pathogens and toxins.

Strengths/ Best Practices

Biosafety training done in all districts. A biosafety curriculum is developed and used for training health facilities. Master trainers on biosafety are available to expand/support trainings. The University of Sierra Leone offers pre-service for medical lab scientists. Best practices: laboratory-specific training has been performed for 4 pathogens; a program of simulation exercises has been developed and one simulation exercise has been completed.

Areas which need strengthening/Challenges

Minimal training on biosecurity available. The country does not conduct needs assessments for biosafety and biosecurity trainings. There is no guidance on staff testing or exercising on biosecurity and biosecurity procedures. There are no master trainers on biosecurity. A challenge is limited funding to support biosecurity.

Relevant Documentation

- National IPC guidelines;
- IDSR technical guidelines;
- Strengthening Laboratory Management Towards Accreditation (SLMTA) guide;
- National Laboratory Strategic Plan

Immunization

Introduction

Immunization is one of the most successful global health interventions and one of the most cost-effective ways to save lives and prevent disease. Immunizations are estimated to prevent more than two-million deaths a year globally.

Target

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

Sierra Leone Level of Capabilities

Sierra Leone has a National Expanded Program on Immunization, responsible for implementation and management of immunization services in the country guided by a Comprehensive Multi Year Plan for Immunization (cMYP) 2012-2016. A current cMYP under development is being aligned with the Global Vaccine Action Plan (GVAP) and Global Immunization Strategy

The country is working to establish a functioning national vaccine delivery system—with nationwide reach, effective distributions, access for marginalized populations, adequate cold chain, and ongoing quality control.

The program aims at reaching every child. Over 80% of districts are covered and there are no stock outs at central level. Dropout rate for immunization was 10% in 2013, 12% in 2014 and 14% in 2015. Though a recent coverage survey indicated that 90% of the country's 12-month-old population has received at least one dose of measles containing vaccine, this followed a supplementary immunization campaign following a measles outbreak and may not necessarily reflect a sustainable routine immunization. Many staff members are not on government payroll leading to poor commitment to provide RI services system. There are some challenges with urban immunization and coverage in hard to reach areas. The second dose measles was recently introduced and uptake has not been very encouraging. Vaccination is very donor driven and heavily dependent on external support. Vaccine delivery (maintaining cold chain) is available in 60-79% of districts within the country. OR Vaccine delivery (maintaining cold chain) is available in 60-79% of the target population in the country; functional vaccine procurement and forecasting lead to no stock outs at the central level and rare stock outs at the district level.

A cold chain assessment was conducted in 2013 and implementation of the recommendations from the improvement plan is ongoing. A similar assessment was carried out in 2016 and recommendations are also expected from the report.

Recommendations for Priority Actions

1. Fast track development of the new cMYP (2017-2021) by end of 2016
2. Implement recommendations of Cold Chain Assessment
3. Conduct refresher training of DHMTs on DVDMT
4. Devise strategies for accessing hard to reach areas and urban children to achieve the "reach every child" target

Indicators and Scores

P.7.1 Vaccine coverage (measles) as part of national program

Score 3: 70-89% of the country's 12-month-old population has received at least one dose of measles containing vaccine, as demonstrated by coverage surveys or administrative data; plan is in place to reach 90% within the next three years

Strengths/ Best Practices

- Sierra Leone has a national-level immunization program with immunization being mandatory
- No vaccine stock outs at central level
- Over 80% of all district units are covered
- The EPI Program successfully led the EVD ring vaccination
- Performance Based-Financing (PBF) provides opportunity to improve immunization services at health facility level

Areas which need strengthening/Challenges

- Inadequate cold chain maintenance at facility level
- Occasional vaccine stock outs observed at health facility level
- Zoonosis of national concern not included in the EPI plan

P.7.2 National vaccine access and delivery

Score 3: Vaccine delivery (maintaining cold chain) is available in 40-59% of districts within the country; OR Vaccine delivery (maintaining cold chain) is available to 40-59% of the target population in the country; vaccine procurement and forecasting leads to no stock outs of vaccines at central level and occasional stock outs at district level.

Strengths/ Best Practices

- Two walk in cold rooms available at the national level (airport and MoHS HQ)
- All districts have functional cold rooms
- Most health facilities countrywide have functional solar fridges and there are plans to replace obsolete vaccine fridges 7 to 10 years and over including those in private sector.
- Vaccine requirements is forecast annually
- District Vaccine Delivery Management Tool is used to monitor vaccine utilization at district & health facility levels
- Performance Based-Financing (PBF) provides opportunity to improve immunization services at health facility level
- District specific micro-plans have been developed

Areas which need strengthening/Challenges

- AEFI (Adverse Events Following Immunization) surveillance system is established in the IDSR though there could be under-reporting as some staff view AEFI as an indictment against them; Hence AEFI are only reported during Supplementary Immunization Activities (SIAs)
- Some health facilities countrywide do not have functional fridges
- Regular power cut could affect quality of vaccines where there is no solar energy
- Many in-charges not on government payroll leading to poor commitment to provide RI services

Relevant Documentation

- Comprehensive Multi Year Plan for Immunization (cMYP) 2012-2016
- Coverage survey report

DETECT

National Laboratory System

Introduction

Public health laboratories provide essential services including disease and outbreak detection, emergency response, environmental monitoring, and disease surveillance. State and local public health laboratories can serve as a focal point for a national system, through their core functions for human, veterinary and food safety including disease prevention, control, and surveillance; integrated data management; reference and specialized testing; laboratory oversight; emergency response; public health research; training and education; and partnerships and communication.

Target

Real-time biosurveillance with a national laboratory system and effective modern point-of-care and laboratory-based diagnostics.

Sierra Leone Level of Capabilities

MOHS has a National Laboratory Services (NLS) program that operates under the Directorate of Hospitals and Laboratory Services and provides overarching policy leadership that includes setting national norms and standards, building capacity, and monitoring of service quality. There are 179 functioning laboratories, operating in a four-tiered system, with increasing degrees of competence and capacity as you go up the tiers. For animal health there is one Central Veterinary Laboratory at Teko in Makeni. The laboratory has not been functional for the past 3 years because of lack of water, electricity and crumbling physical infrastructure.

The Central Public Health Reference Laboratory (CPHRL) and the wider laboratory system comply with the recommendations of the WHO IHR framework by providing the following core tests: Plasmodium spp., HIV, TB, influenza, measles, Lassa, Ebola and Acute flaccid paralysis (AFP) investigation for Polio.

Systems are in place to transport specific disease specimens (VHFs, measles, AFP) to national laboratories from all the districts for advanced diagnostics. Tier specific diagnostic testing strategies are documented, but not fully implemented.

Proficiency in classical diagnostic techniques including serology and PCR in referral labs for core tests. Bacteriology capacity development at CPHRL is a work in progress. Accreditation process under SLMTA commenced at the CPHRL. Health laboratories licensed as hospital licensure process. No lab specific license.

Recommendations for Priority Actions

1. Develop functional capacity within the entire animal laboratory system including at the Central Veterinary Laboratory
2. Establish a functional bacteriology section in the CPHRL
3. Finalize and implement the draft sample transportation policy and SOPs
4. Complete the SLMTA process as part of quality improvement system
5. Establish mechanism for the regulation of laboratory practice in the country including private labs

Indicators and Scores

D.1.1 Laboratory testing for detection of priority diseases

Score 4 (Human Health): National laboratory system is capable of conducting five or more of the ten core tests. This score is for human health only.

Score 1 (Animal Health): National laboratory system is not capable of conducting any core tests for animal health.

Strengths/ Best Practices

National diagnostic algorithms for performance of the WHO core laboratory tests are available. Malaria and HIV testing is available in nearly all health facilities with labs. TB testing is available in many facilities in the country. The CPHRL offers Measles, Lassa, EVD, Influenza testing. There are official agreements with labs outside of the country for specialized testing not available in country. CPHRL and other reference laboratories have testing algorithms which are disseminated. A best practice is the IDSR revitalization raised awareness on the need to test for detection of priority diseases, conditions and events.

Areas which need strengthening/Challenges

Some tests such as cholera culture are not consistently done. Most of the district labs do not have the equipment for the required/expected tests. Majority of the district laboratories have no established SOPs for laboratory tests. Challenges: frequent stock outs of lab commodities and lack of animal health testing.

D.1.2 Specimen referral and transport system

Score 3 (Human health): System is in place to transport specimens to national laboratories from 50- 80% of intermediate level/districts within the country for advanced diagnostics.

Score 1 (animal health): No system in place of transporting specimens from intermediate level/districts to national laboratories, only ad hoc transporting.

Strengths/ Best Practices

Specimen referral network well documented for EVD, TB and measles samples. A draft policy for specimen transportation has been developed. The country participates in international laboratory networks - FluNet, Measles, HIV test networks. A best practice is IDSR revitalization which has contributed to the establishment of a strong specimen referral and transport system for priority diseases, conditions and events.

Areas which need strengthening/Challenges

There are no specific regulations or guidelines for the appropriate packaging and referral of specimens except few priority diseases such as EVD, AFP/polio and measles. Apart from EVD, there is no designated transport mechanism for referral of specimen from the peripheral level to the national level. Challenges include lack of funding to support specimen referral and transport system and inadequate coordination among stakeholders.

D.1.3 Effective modern point of care and laboratory based diagnostics

<mark>**Score 2 (human health):** Minimal laboratory diagnostic capacity exists within the country, but no tier specific diagnostic testing strategies are documented. Point of care diagnostics being used for country priority diseases.</mark>

This indicator was downgraded from 3→2 because of the lack of bacteriology capacity in country and the critical importance of AMR.

<mark>**Score 1 (animal health): No evidence of use of rapid and accurate point of care and laboratory based diagnostics for animal health. No tier specific diagnostic testing strategies are documented.**</mark>

Strengths/ Best Practices
Sierra Leone has a National Laboratory Strategic Plan in place to improve the availability of point of care diagnostics at clinical sites. There are procurement processes for purchase of media and reagents for performance of core laboratory tests. A best practice is IDSR revitalization which has contributed to raising awareness on the importance of availability of media and reagents for the performance of core laboratory tests. The laboratory has serology and PCR capacity; however, bacteriology capacity is lacking.

Areas which need strengthening/Challenges
There is no in-country production and/or procurement processes for acquiring necessary media and reagents for performance of core laboratory tests. The country is heavily dependent on donors to access all laboratory supplies. Challenges include frequent stock out of media and reagents for performance of core laboratory tests.

D.1.4 Laboratory Quality System

<mark>**Score 2 (human health):** National quality standards have been developed but there is no system for verifying their implementation.</mark>

<mark>**Score 1 (animal health):** There is no national laboratory quality standards for animal health.</mark>

Strengths/ Best Practices
National laboratories use services of foreign national or regional accreditation bodies. Lab accreditation process is currently ongoing. The CPHRL received provisional accreditation by WHO to conduct measles and yellow fever testing. There is a post marketing validation protocol in regards to the registration procedure for in vitro diagnostic medical labs. Lab quality audits and support supervision are done with feedback. There are 10 quality indicators to measure the progress in laboratory test quality. The country has national EQA program for EVD, TB and HIV. Best practice: good collaboration between lab, IDSR, IPC, and EPI stakeholders contributes to improving lab quality system.

Areas which need strengthening/Challenges
There is no national body in charge of laboratory licensing, laboratory inspection, laboratory certification, laboratory accreditation. There is no lab currently accredited in the country. There is no specific national document which describes the registration procedure for in vitro diagnostic medical labs. There are no guidelines for mandatory EQA. No legal framework to ensure regulatory compliance—private labs are covered under the Medical

and Dental Council. There is a private lab participating in SARI but otherwise no oversight over private labs. Challenges include insufficient coordination/collaboration between human and animal health lab systems.

Relevant Documentation

- Draft Guidance for Sample Transport from Facilities to Laboratories;
- Sierra Leone Ethics and Scientific Review Committee–Guidelines;
- Guide for Strengthening Laboratory Management Towards Accreditation (SLMTA);
- SLMTA Trainer's Guide;
- National Laboratory Strategic Plan

Field visit to the Central Public Health Reference Laboratory

Real-Time Surveillance

Introduction

The purpose of real-time surveillance is to advance the safety, security, and resilience of the Nation by leading an integrated bio-surveillance effort that facilitates early warning and situational awareness of biological events.

Target

Strengthened foundational indicator- and event-based surveillance systems that are able to detect events of significance for public health, animal health and health security; improved communication and collaboration across sectors and between sub-national, national and international levels of authority regarding surveillance of events of public health significance; improved country and regional capacity to analyse and link data from and between strengthened, real-time surveillance systems, including interoperable, interconnected electronic reporting systems. This can include epidemiologic, clinical, laboratory, environmental testing, product safety and quality, and bioinformatics data; and advancement in fulfilling the core capacity requirements for surveillance in accordance with the IHR and the OIE standards.

Sierra Leone Level of Capabilities

Sierra Leone has in place a surveillance program managed by the DPC, MOHS.

The country has a list of priority diseases, conditions, and events. Some are notifiable immediately and others reportable weekly

Event-based surveillance is in place both for formal and informal reporting and rumour logging. All districts report events through 117 national hotline.

Community Based Surveillance (CBS) being rolled out. Currently 3 out of 14 districts implementing with planned scale-up. CHWs report through their peer supervisor to health facilities that respond by investigating the reported diseases, conditions, and events.

Indicator-based surveillance for human health priority diseases is being conducted. Reports are generated from all health facilities and sent to DHMT weekly. DHMT then submit to national by 4.00pm every Monday. And national sends it to WHO by 6.00pm every Monday.

The country revised its IDSR strategy in 2015, printed and distributed guidelines, job aids and reporting tools

At least one health worker from each health facility has been trained in IDSR.

Timeliness and completeness of weekly reporting is above 90% for public sector. The private sector does not report. Reporting is currently both paper-based and electronic, with an electronic web-based national database.

A weekly epidemiologic bulletin is produced and circulated widely by national level and each of the 13 districts

The MOHS monitors and validates data weekly and data quality audit conducted bi-annually

Support supervision for IDSR conducted by national level quarterly and by districts monthly.

The MOHS is currently developing an interoperable, interconnected, real time surveillance reporting system based on the already existing DHIS2 platform.

Animal surveillance reporting tools utilized and on-going reports submitted to AU and OIE. A database is available. However, no organized and structured data quality assurance and validation for animal health surveillance exists

Currently the reporting system is not interoperable and integrated with other systems.

There are no arrangements for sharing data routinely with other ministries/sectors

Staff at District level and national Levels analyze data. There is minimal data analysis ongoing at health facilities

Syndromic surveillance is conducted for a number of diseases and conditions such as AFP, SARI, ILI, AVHF, acute diarrhea with dehydration

Syndromic surveillance is also conducted for animal health.

Recommendations for Priority Actions
- Finalize roll out of CBS and strengthen event base surveillance systems.
- Strengthen animal health surveillance at all levels
- Use the One Health platform to improve information sharing
- Improve technical capacity by training and mentoring personnel including clinical, lab and middle level management staff
- Involve the private sector in the surveillance
- Finalize and deploy the electronic surveillance reporting platform that will be integrated and inter-operable with other systems

Indicators and Scores

D.2.1 Indicator and event based surveillance systems

Score 4: Indicator and event-based surveillance system(s) in place to detect public health threats

Strengths/ Best Practices
- Surveillance program at MOHS dedicated to surveillance and response
- List of priority diseases, conditions and events exist
- IDSR strategy revised 2015
- Indicator based surveillance exists
- Events based surveillance and CBS implemented
- All health facilities have at least 1 trained HW
- All guidelines, job aids, training material and reporting tools printed and distributed
- Animal health system also conducting surveillance
- Consistent production of weekly epidemiological bulletins by national level and all 13 districts for information sharing and feedback

Areas which need strengthening/Challenges
- Scaling up CBS to all districts and chiefdoms
- Only 29% of health facilities keeping updated rumour log books (July 2016)
- Training more health workers at all levels
- Improving/strengthening animal health surveillance
- No information sharing between sectors

D.2.2 Inter-operable, interconnected, electronic real-time reporting system

Score 2: Country is developing an interoperable, interconnected, electronic real-time reporting system, for either public health or veterinary surveillance

Strengths/ Best Practices
- Currently reporting both paper-based and electronic
- MOHS developing an electronic web-based reporting platform

Areas which need strengthening/Challenges
- Moving down data entry on the electronic platform from district level to health facilities
- Integrating the IDSR reporting platform with other platforms/sectors and making it interoperable
- Poor network and internet coverage
- Health workers comfort with using electronic platforms to report (use of IT challenging)
- High cost of investment

D.2.3 Analysis of surveillance data

Score 4: Annually or monthly reporting; attributed functions to experts for analysing, assessing and reporting data

Strengths/ Best Practices
- Data analysis is conducted by national level and all districts
- All levels are using IT for data analysis
- All levels produce a bulletin for information sharing
- Production of bulletins

Areas which need strengthening/Challenges
- Health facilities are not largely analyzing data
- Provision of IT equipment to districts and major health facilities
- Adequate numbers of IT equipment for data analysis

D.2.4 Syndromic surveillance systems

Score 4: Syndromic surveillance system(s) in place to detect three or more core syndromes indicative of public health emergencies

Strengths/ Best Practices
- Syndromic surveillance well developed as a part of IDSR
- Use of lab to support syndromic surveillance
- Monitoring performance of syndromic surveillance through indicators like non-AFP detection rate

Areas which need strengthening/Challenges
- Assessing performance of syndromic surveillance for all critical syndromes

Relevant Documentation

- IDSR Technical guidelines 2015
- IDSR training modules
- IDSR reporting tools (assorted)
- CBS guidelines and SOPs
- CBS job aids
- CBS training modules

Reporting

Introduction

Health threats at the human–animal–ecosystem interface have increased over the past decades, as pathogens continue to evolve and adapt to new hosts and environments, imposing a burden on human and animal health systems. Collaborative multidisciplinary reporting on the health of humans, animals, and ecosystems reduces the risk of diseases at the interfaces between them.

Target

Timely and accurate disease reporting according to WHO requirements and consistent coordination with FAO and OIE.

Sierra Leone Level of Capabilities

The country has designated national IHR focal point from the Ministry of Health and Sanitation and OIE focal person from the Ministry of Agriculture and Food Safety Services. The focal persons have trained on IHR (2005) regulations from their respective sectors. The health sector has demonstrated a capacity in identifying and notifying a potential PHEIC events to WHO with recent events of a buccal swab collected in Tonkolili district that had tested positive for Ebola and suspected Yellow Fever case in Moyamba district. A Public Health Emergency Management Committee (PHEMC) has been established within the Ministry of Health and Sanitation which is a good mechanism for sharing of information between the different disciplines.

However no formal mechanism is established for exchange of information between the different relevant sectors in the country and with neighboring countries. Moreover, the country does not have standard operating procedures, policies, and legislation in place for approving and reporting of a potential PHEIC to WHO other than IDSR guideline. The IHR NFP has no representation from all key sectors in the country which have major roles in implementation of the IHR (2005) regulations and the reporting system in agriculture sector is not as efficient as the public health sector.

Recommendations for Priority Actions

- Designate and capacitate all ministry/sector focal persons so as to constitute IHR NFP team
- Further training for IHR NFP and OIE contact person and other ministry/sector representatives
- Develop legislation, policies, guidelines, and SOPs for reporting
- Develop regional multi-lateral and bilateral arrangements for information sharing

Indicators and Scores

D.4.1 System for efficient reporting to WHO, FAO and OIE

Score 3: Country has demonstrated ability to identify a potential PHEIC and file a report to WHO based on an exercise or real event, and similarly to the OIE for relevant zoonotic disease

Strengths/ Best Practices

The Sierra Leone Ministry of Health and Sanitation has nominated IHR focal person for IHR and a contact person for OIE from agriculture and these persons have been trained on the regulations. A multidisciplinary and multi-sectoral Public Health Emergency Management Committee (PHEMC) is established for reviewing of potential PHEIC events in the country. The country has demonstrated a capacity for notification of potential PHEIC events to WHO although this only applies to the public health system. More over the existence of a bilateral agreements between some

districts and counterparts in the neighboring countries is good experience to be expanded to country level cooperation.

Areas which need strengthening/Challenges

More effort is required to develop national legislation, policy, guidelines, and SOPs for notification of potential PHEIC to WHO and OIE and to exchange information between key sectors. The IHR NFP need to have representation from all key sectors in Sierra Leone that have major roles in the implementation of IHR (2005) regulations. Moreover, linking the national electronic public health surveillance system and veterinary surveillance to the PHEOC are critical areas to improve.

D.4.2 Reporting network and protocols in country

Score 2: Country is in the process of developing and establishing protocols, processes, regulations, and/or legislation governing reporting to start implementation within a year.

Strengths/ Best Practices

A Public Health Emergency Operation Centre (PHEOC) has been established for coordinating information through the IHR NFP on potential PHEIC which has been tested in notifying WHO on the recent Ebola and yellow fever events. More over the country is implementing an electronic reporting system (DHIS2) which intern strengthens the reporting network by improving surveillance report completeness and timeliness.

Areas which need strengthening/Challenges

Availing national legislations, guidelines, and SOPs for notification of PHEIC events and mechanisms for sharing of information between the key sectors, other countries and WHO is critical. The agriculture sector must be supported to establish detection and reporting capacity for priority zoonotic diseases.

Relevant Documentation

- IHR NFP and OIE delegates letters of appointment (Dr. Jambai and Dr. Jalloh)
- The PHNEOC organogram
- EVD Preparedness and response plan
- Kambia district (SL)- Forecariah Prefecture (Guinea) MOU;
- Koinadugu district (SL) and Farana Prefecture (Guinea) MOU;
- Mano river union MOU/Agreement
- Tonkolili outbreak report (MOHS and WHO)
- Suspected Yellow fever case investigation report
- "The nation's policy of performing buccal swabs for Ebola virus"
- IDSR Technical Guideline 2010

Workforce Development

Introduction

Workforce development is important to develop a sustainable public health system over time by developing and maintaining the highly qualified public health workforce with appropriate technical training, scientific skills, and subject-matter expertise.

A competent multidisciplinary workforce is key to developing a sustainable public health system over time and to be able to timely and effectively respond to emergencies. It requires skills and competencies of a variety of professionals in the human and animal health sector. This should include physicians, nurses, laboratory scientists as well as epidemiologists, social scientists, biostatisticians, information system specialists and biomedical engineers. Corresponding competencies are needed on the animal side requiring not only the availability of veterinarians, wildlife, farming, and livestock professionals, but also of epidemiologists, lab specialists and IT staff.

Ensuring quality of pre-service training based on comprehensive curricula and skills-based approaches and continued in-service education will result in sustainable long-term workforce development. However, high attrition rates may hamper the increased availability of specialists. Therefore, workforce development needs to consider adequate payment, conduciveness of work environment, clear career paths and other concepts in support of long term retention of staff. While these aspects are not unique to implementation of IHR, they are essential to long-term sustainability of progress.

Most emerging infectious diseases originate in animals, thus the animal-human interface being critical to prevent, detect and control new outbreaks. Therefore, it is crucial that both sectors, the human health and animal health sector, have strong workforce and personnel who can systematically cooperate to meet relevant IHR and PVS.

Target

State parties should have skilled and competent health personnel for sustainable and functional public health surveillance and response at all levels of the health system and the effective implementation of the IHR (2005). A workforce includes physicians, animal health or veterinarians, biostatisticians, laboratory scientists, farming/livestock professionals, with an optimal target of one trained field epidemiologist (or equivalent) per 200,000 population, who can systematically cooperate to meet relevant IHR and PVS core competencies.

Sierra Leone Level of Capabilities

Sierra Leone's health work force in the health sector is facing severe constraints in terms of numbers of qualified staff, distribution within the country and level of skills and competence. This situation was further compounded by the Ebola outbreak causing the deaths of 339 health workers. Constraints concern both, the human and the animal health sector with the shortcomings being more pronounced in the animal health sector.

Currently, there are only four veterinarians in the whole country, two of them working in administrative positions and two staff with a Bachelor of Science in senior positions in animal production. There are 13 district livestock officers supported by livestock assistants, two lab technicians and no animal health epidemiologist, nor IT staff.

In the human health sector an overall gap of 8,481 health professionals currently exists between Basic Package of Essential Health Services (BPEHS) staffing norms and the current workforce (HRH country profile 09/2016). Gaps vary by cadre. Higher qualified cadres such as state registered nurses, midwives and physicians are lacking. More than 50% of the health workforce is found in Freetown, where only ~25% of the population resides. Unsalaried workers comprise nearly half of the workforce (total 10,140 employed, 9120 unsalaried, 2016). Even districts with a large workforce have a significant facility-level gap. However, retention has significantly increased since the

introduction of performance- based financing in 2010. The draft human resource strategy 2016 is based on BPEHS and does not include epidemiologists or social scientists. There are 2 Public Health Nurses /district and most DMOs have a MPH and some training in epidemiology.

Recommendations for Priority Actions

- Revisit pre-service curricula of health staff to ensure that aspects of one health and integrated disease surveillance are covered in pre-service training.
- Develop minimum standards for animal and human health staffing levels that include (among others) social scientists and revisit human resources for health strategies for their inclusion.
- Work on retention strategies for animal health staff.
- Fast track the recruitment process into vacant posts.
- Develop plans for sustainability of basic FELTP that includes veterinarian and laboratory staff and for advanced training in the Western African Region to expand developed capacities.

Indicators and Scores

D.4.1 Human resources are available to implement IHR core capacity requirements

Score 2: Country has multidisciplinary HR capacity (epidemiologists, veterinarians, clinicians and laboratory specialists or technicians) at national level.

The country is working to establish a multidisciplinary HR capacity at all levels of the health system. There are few epidemiologists, veterinarians/wildlife officers, clinicians and some laboratory specialists/technicians available at national level and there are very few trained qualified professionals at district and primary care unit level. Even at national level not all disciplines are available or fully trained. In particular laboratory specialists and other lab staff, epidemiologists and nurses in charge are limited and need additional training. While most District Medical Officers have an MPH and have some training in basic epidemiology, the number of officers currently being trained in field epidemiology is not yet sufficient to cover the whole area and respond to all needs. As mentioned above the capacity of the animal health workforce is extremely limited and no incentives are available to support retention and career development. One veterinarian is currently undergoing a short course epidemiology training in Ghana.

Strengths/ Best Practices

- The presence of WHO District Epis provides a great opportunity to mentor district RRTs and FETP graduates and enhance their practice after initial training. While WHO currently provides this support, it provides an excellent model for continued skills building once more advanced national epidemiologists become available.
- The introduction of performance based financing as an incentive system during the" free healthcare initiative" has led to substantial increases in number and pay and reported reduction in absenteeism and attrition and an increase of outputs of health workers[1.]

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[1] Witter S, Wurie H and Bertone MP. The free healthcare initiative: how has it affected healthcare workers in Sierra Leone. Health Policy Plan 2015, 1-9

Areas which need strengthening/Challenges

- Despite the progress made the multidisciplinary capacity is still confined to certain specialities and mostly at national level. More specialised staff is needed (e.g. laboratory specialists, social scientists, veterinarians) and staff having undergone basic training will need further upgrading.
- There is an inadequate number of animal health specialists in the country and there is no incentive system to attract more people into the profession.
- No animal health staff has been trained as RRTs.
- Competencies that are currently being built through in-service trainings should be addressed in curricula of pre-service education and training to ensure long-term strengthening of the workforce.
- Fast tracking recruitment of staff into vacant positions is of high priority to make better use of already available skills and competencies and thus rapidly strengthening the workforce.
- Posts need be established for professions currently not covered in the HRH strategy such as epidemiologists, social scientists, biostatisticians, IT specialists or biomedical technicians to ensure sustained capacity.
- Strengthening the Human Resource information system to be able to even better target workforce development and continued in-service education.

Challenges:

- To meet IHR and PVS requirements, it is essential that personnel can systematically cooperate and communicate. The limited workforce at all levels of MAFF presents a structural limitation to effective communication and coordination.
- The support to the animal health workforce is very limited. This severely threatens the feasibility of implementing a one health approach which in turn is needed to effectively implement the IHR and work towards health security.

D.4.2 Field Epidemiology Training Program or other applied epidemiology training program in place

Score 3: One level of FETP (Basic, Intermediate, or Advanced) FETP or comparable applied epidemiology training program in place in the country or in another country through an existing agreement.

There is an ongoing basic/frontline FETP program in the country with 18 participants recently trained in basic frontline epidemiology and 8 of them working in the system. A second cohort of 19 participants is currently enrolled and there is a plan for a third cohort in the next year. Participants are from national and district level. Training materials are available. FETP frontline training does not include a laboratory or veterinary component; no one from the animal sector has been trained so far.

Strengths/ Best Practices

- FETP has resulted in District Surveillance Officers (DSO) greater involvement in production of weekly epi bulletins.
- Training on Integrated Disease Surveillance and Response has established communications thru national & district levels
- Ongoing mentorship provided by District Surveillance Officers and National Surveillance Officers to Frontline.

Areas which need strengthening/Challenges
- Frontline FETP should include laboratory and animal health staff. However, even if included participation of animal health staff is challenged by the very limited number of staff potentially eligible.
- FETP is currently fully supported by CDC SL and CDC/Atlanta as well as AFENET. Arrangements need to be made to anchor the training within the Sierra Leone system to ensure long-term sustainability.
- Currently, there are no provisions for advanced FETP. This could be made available through arrangements with other countries in the West African region, but budget would need to become available.
- There is no partnership with other countries in the region to share FETP graduates during emergency events

D.4.3 Workforce strategy

Score 2 (human health): A healthcare workforce strategy exists but does not include public health professions (e.g. epidemiologists, veterinarians, and laboratory technicians)

Score 1 (animal health): No health workforce strategy exists

Strengths/ Best Practices
- Based on the HRH Profile (2011) and the HRH Policy (2012) the country had developed a HRH strategic plan (2012-2016). Now a roadmap for a refreshed HRH policy and strategic plan (HRH summit 2.06.16) is available. The upcoming period will address some of the critical issues like improved planning of human resources based on improved data (introduction of HRIS), increasing the number, skills and distribution of the health workforce as well as enhancing recruitment, financing mechanisms, regulation and performance management .
- As mentioned above the introduction of an incentive system in health sector has resulted in low attrition rates in the MOHS.

Areas which need strengthening/Challenges
- The current HRH strategy is based on the needs for the delivery of a basic package of services. Though it is ambitious, it does not yet include professions like epidemiologists, biostatisticians and social scientists hampering the needed establishment of such posts.
- A human resources for animal health strategy is not available, but would be needed to plan the workforce according to needs. Currently staffing levels as presented on the nominal staff list seem inappropriate in relation to the functions needed on order to implement an effective animal health systems that can respond to all needs
- There is no mechanism to monitor implementation and tracking of the workforce strategy
- There is no identified career path for Public Health staff at MoHS.

Relevant Documentation

MOHSS, HRH Policy (2012)

MoHSS, HRH strategic plan (2012-2016)

MOHSS A roadmap for Sierra Leone's refreshed HRH Policy and Strategic Plan, HRH Summit, 2 June 2016

Human Resources for Health, Sierra Leone Country Profile (9/2016)

Ministry of Agriculture, Forestry and Food Security, Department/division of livestock. Nominal Roll (staff in post list 10/2016)

FELTP basic training documentation

Witter S, Wurie H and Bertone MP. The free healthcare initiative: how has it affected healthcare workers in Sierra Leone. Health Policy Plan 2015, 1-9

RESPOND

Preparedness

Introduction
Preparedness includes the development and maintenance of national, intermediate, and community/primary response level public health emergency response plans for relevant biological, chemical, radiological, and nuclear hazards. Other components of preparedness include mapping of potential hazards, the identification and maintenances of available resources, including national stockpiles and the capacity to support operations at the intermediate and community/primary response levels during a public health emergency.

Target
The effective implementation of the IHR (2005) requires multi-sectoral/multidisciplinary approaches through national partnerships for effective alert and response systems. Coordination of nationwide resources, including the sustainable functioning of a National IHR Focal Point (NFP), which is a national centre for IHR (2005) communications, is a key requisite for IHR (2005) implementation. The NFP should be accessible always to communicate with the WHO IHR Regional Contact Points and with all relevant sectors and other stakeholders in the country. States Parties should provide WHO with contact details of NFPs, continuously update and annually confirm them.

Sierra Leone Level of Capabilities
In 2007, Sierra Leone developed a National Multi-Hazard Contingency Plan that includes disaster management in coordination from the Office of National Security (ONS). Though it is not oriented to health, it was used to respond to H1N1 influenza. It does not meet IHR Core capacity requirements. Existing plans are thematic based (focussing specifically on Ebola, Cholera, Zika and Floods) and not integrated into a comprehensive public health emergency preparedness and response plan. A draft framework has been developed, however, it has not been finalized to incorporate multi-sectoral components (including Points of Entry) or costing elements, nor does it clearly define procedures to mobilize surge resources or stockpiling. While the country team indicated that surge capacity and stockpiling are available, a site visit by the JEE team to Connaught and Military Hospitals found that insufficient supplies were available at either and staff estimated that after 72 hours their ability to cope with a public health emergency of concern would be fully tapped. The country faces challenges in obtaining drugs or medical supplies on short notice or in the case of emergencies, as demonstrated by Ebola Virus Disease (EVD). Procurement lag times due to long production cycles and multi-country pre-orders render the Government of Sierra Leone dependent on partner donations and coordination during emergencies.

At the national level, a multi-hazard risk profiling has been completed, including biological, chemical, radiation and natural hazards. This risk-profiling exercise was completed in September 2016 with multi-sectoral partners. A similar risk profiling process is yet to be conducted at district level to address district emergencies. The resource mapping has not been conducted and logistical pre-positioning at the district level is only in place for cholera, measles and EVD.

Now, there are a variety of mechanisms to report PHEIC, but no standardized/best practice way. The general population is encouraged to call the 117 hotline to report public health concerns and the 119 hotline in case of an

emergency, disaster or a security issue. While 117 is generally known and a well-used resource, there is a need to publicize the 119 hotline to make it effective, as there is little awareness of its existence.

There is a comprehensive EOC (see EOC report) and preparedness structures at district levels are synergised and coordinated by the DDMC, DEMC and other structures. The Emergency Preparedness Resilience and Response Teams (RRTs) meet weekly at the national EOC to identify needs and allocations of resources.

When the need arises, regulatory bodies are engaged to give waivers during emergencies such as the flexibility granted for health staff to respond during EVD and waivers granted by the Pharmacy board for certification of drugs during EVD outbreak.

While some Ebola Treatment Centres are being decommissioned, a plan to construct facilities for management of highly infectious diseases is being implemented for all secondary hospitals. As part of preparedness, hospitals in four districts have identified staff who can be readily deployed to these isolation units to manage these cases when the need arises.

Recommendations for Priority Actions
- Conduct risk and resources mapping of all priority public health risks
- Develop and implement multi-hazard national public health emergency preparedness and response plan that includes a costing element
- Develop a Stockpiling Emergency Plan and establish mechanisms for accessing funds for emergencies and supplies

Indicators and Scores

R.1.1 Multi-hazard National Public Health Emergency Preparedness and Response Plan is developed and implemented

Score 1: National public health emergency preparedness and response plan is not available to meet the IHR core capacity requirements. (Annex 1A Article 2)

Strengths/ Best Practices
- Draft plans exist for cholera, floods, EVD, and Zika as separate documents
- Surge capacity to respond to public health emergencies of national and international concern exists
- An Emergency Operation Centre (EOC) is in place and functional
- Emergency response structures are available across lower levels of government: Public Health Emergency Management Committee (PHEMC), District Disaster Management Committee (DDMC) and National and District Rapid Response Teams (RRT). All RRT from the 14 districts have been trained and a functional list of RRTs will be available for reference
- There are mechanisms for transfer of some limited resources in emergencies

- Mechanisms also allow MOH to move and task shift health personnel from one unit to fill needs and functions in emergencies. While the HR code may not show certain categories of expertise, there are modalities for persons with that capacity to be easily deployed and this was tested during EVD.

Areas which need strengthening/Challenges
- No comprehensive, costed national hazard emergency plan is available
- Non-availability of standby funds for emergencies, which limits ability to plan
- Inadequate structures for pre-emergency procurement and planning; evident in the Ebola outbreak when there were procurement delays in accessing essential drugs and items. Partners with faster procurement procedures were relied on to fast track delivery of items.
- No hotline for clinicians to call in case of a disease of unknown origin. There is a best practice of notifying the DHMT and District surveillance officer, however it needs to be standardized.
- Inadequate resources: human, logistics, funding for preparedness

R.1.2 Priority public health risks and resources are mapped and utilized

Score 1: Public health risk and resources mapping is not utilized

Strengths/ Best Practices
- Risk profiling was conducted for all hazards: biological, chemical, radiation, natural hazards
- Risk profile and risk matrix were drafted, profiling cholera, EVD, Zika and flooding.

Areas which need strengthening/Challenges
- Resource mapping for all hazards
- Inadequate resources: human, logistics, funding for preparedness

Relevant Documentation

- Draft Public Health Incidents and Emergency Response Plan
- National EVD Preparedness and Response Plan 2016
- Zika Preparedness and Response Plan 2016
- Cholera Preparedness and Response Plan 2013-2017

Emergency Response Operations

Introduction

A public health emergency operations center (EOC) is a central location for coordinating operational information and resources for strategic management of public health emergencies and emergency exercises. EOCs provide communication and information tools and services and a management system during a response to an emergency or emergency exercise. They also provide other essential functions to support decision-making and implementation, coordination, and collaboration.

Target

Countries will have a public health Emergency Operation Center (EOC) functioning according to minimum common standards; maintaining trained, functioning, multi-sectoral rapid response teams and "real-time" biosurveillance laboratory networks and information systems; and trained EOC staff capable of activating a coordinated emergency response within 120 minutes of the identification of a public health emergency.

Sierra Leone Level of Capabilities

The emergence of Ebola Virus Disease outbreaks in West Africa commissioned the establishment of the national and district Public Health Emergency Operation Centres (PHEOC) as one of the key strategies to fight the Ebola Virus Disease (EVD) outbreak in Sierra Leone. During the EVD outbreak 13 District structures were transformed and one national PHEOC was fully constructed. The EOCs were furnished with office furniture, computers, TV monitors, internet, training facilities and generators. These resources will need maintenance to remain operational hence sustainability is an issue. Currently, the EOC convenes both Incidence Management meetings, National Public Health Emergency Preparedness and Response (NPHEPR) meetings and technical meetings. The coordination structures and functions are not without terms of reference and frequencies are tailored to incidence and standing meetings. Though the establishment of the EOC was not commissioned by legislation, it was directed by strong leadership from the Offices of the President of the Republic and the Minister of Health and Sanitation. The NPHEOC is home to the Incidence Manager and Director of Disease Prevention and Control, the Offices of the National Security (ONS), Public Health Agency, Public Health England, US Centres for Disease Control and Prevention, the African Field Epidemiology and Laboratory Training Network (FELTP), Emory University, and relevant technical offices (Administrative, finance, laboratory, training, Disease Surveillance and Data Units, etc.). However, the NPHEOC is routinely opened 8 hours daily but not linked to the national Emergency Medical Services call centre.

The NPHEOC is currently in a building within the premises of the Republic of Sierra Leone Arms Forces (RSLAF) and is a permanent, well-resourced structure manned by the Armed Forces and private security farm.

To operationalise the EOC there is an established Incident Management System, Emergency Operations Plan, EOC Operational Plan, and Emergency Operations Centre Standard Operating Procedure (SOP). There is surge capacity as proof by stand by ambulances and 4x4 vehicles, stock of response supplies, national and district RRTs. Meanwhile, IDSR focused simulations are yet to be conducted.

Summarily, the country has developed appreciable public health emergency operations systems and instruments to activate (within 120 mins. as demonstrated by the recent flare-up of EVD and measles outbreaks), deactivate and respond to emergency operations at national and district levels using one health platform but the need to develop IHR related case management tools, increase HR capacity and capabilities and ensure sustainable financing cannot be over emphasized.

Recommendations for Priority Actions

To ensure that efforts are made towards developing sustainable capacity for emergency response operations, it is recommended that Sierra Leone prioritises the following:

- Increase training and retention of surge capacity staff in emergency response operations competencies
- Government ownership as demonstrated by dedicated budgetary support to ensure sustainable funding and authority to the national EOC to mobilize resources required for response.

Develop curriculum and institutionalized EOC and simulation training programs

Indicators and Scores

R.2.1 Capacity to Activate Emergency Operations

Score 4: In addition to activities for "developed capacity", there is dedicated EOC staff that has received training and can activate a response within two hours

Strengths/ Best Practices

Sierra Leone has functional EOCs at 13 districts and 1 national EOC. There is evidence of trained and dedicated EOC staff at national and district levels to coordinate and activate emergency response within 120 minutes with relevant coordination structures and documented Terms of References. The coordination structures are inclusive of line ministries, agencies, partners and securities and there is also proof that the country has tested the system of activation and response by evidence of EVD and measles outbreaks. Working closely with partners during and out of emergencies helps to transfer skills to local and knowledge in response to emergencies.

Areas which need strengthening/Challenges

Areas that require improvement are increase capacity for additional staff not trained at EOC in emergency management, public health administration and logistics. Other areas to consider is Emergency Medical Services for call Center Staff, Ambulance drivers and Nurses. At the moment, the operationalization of the EOC is partner dependent. Government centred ownership to provide functional support remains a challenge to be addressed.

R.2.2 Emergency Operations Center Operating Procedures and Plans

Score 3: In addition to meeting requirements of "limited capacity", EOC plans are in place for functions including public health science (epidemiology, medical and other subject matter expertise), public communications, partner liaison

Strengths/ Best Practices

Sierra Leone has shown tested capacity of their EOC procedures and plans that were developed as a result of the EVD flare-up and measles outbreaks. In addition to the EOC plans and draft SOP, there are event specific National Emergency Preparedness and Response Plans though skewed to health for Pandemic Influenza, EVD, Cholera and Avian Flu, 2006). These plans formed the guiding documents for the response to the public health events.

Areas which need strengthening/Challenges

To ensure that all the great strides that have been harnessed is sustained, align NPHEOC standard operating procedures (SOP) with the national disaster operation centre tools; an integrated "Multi-hazard preparedness and response plan developed, increase capacity for human and animal epidemiologist.

R.2.3 Emergency Operations Program

<mark>**Score 4:** EOC activated a coordinated emergency response or exercise within 120 minutes of the identification of a public health emergency; response utilized operations, logistic and planning functions</mark>

Strengths/ Best Practices

Emergency operations at national and districts are decentralized and are guided by sound, well-structured documents. This allows for a certain level of self-reliance and decision making. Evidence of this approach was the coordinated response during the EVD outbreaks, and measles from the national and district EOCs. It is also worth noting that partnership and collaboration through hands-on transfer of skills to locals and knowledge in response to emergencies is an evidence model that still exist at the EOCs

Areas which need strengthening/Challenges

For the efficient coordination of response activities and the day-to-day operations of the EOC, logistics capacity and a long-term equipment maintenance plan, beyond the investment period of partners, must be developed. In addition, the mobilization of resources for EOC operations is still partner dependent as the EOC has no resource mobilization authority.

R.2.4 Case management procedures are implemented for IHR relevant hazards

<mark>**Score 2:** Case management guidelines are available for priority epidemic-prone diseases</mark>

Strengths/ Best Practices

At best, Sierra Leone has in place Epidemic Preparedness and Response plans and related case management guidelines (EVD Case Management, Cholera Case Management Guidelines) but skewed to epidemic prone diseases.

Areas which need strengthening/Challenges

The need to develop the Multi-Hazard preparedness and response plans with related case management guidelines in relation to IHR core competencies. These case management instruments should be developed inclusive of the pre-service institutions, before all relevant stakeholders institutionalize them, as noted by the in-country representatives

Relevant Documentation

- TORs in EOC operational plan
- Report of staff visit to Uganda and Ghana EOC
- Public Health Incidents and Emergency Response Plan
- Case management plan

Linking Public Health and Security Authorities

Introduction

Public health emergencies pose special challenges for law enforcement, whether the threat is manmade (e.g., the anthrax terrorist attacks) or naturally occurring (e.g., flu pandemics). In a public health emergency, law enforcement will need to quickly coordinate its response with public health and medical officials.

Target

In the event of a biological event of suspected or confirmed deliberate origin, a country will be able to conduct a rapid, multi-sectoral response, including the capacity to link public health and law enforcement, and to provide and/or request effective and timely international assistance, including to investigate alleged use events.

Sierra Leone Level of Capabilities

The Public Health Ordinance 1960 provides the overarching legal basis to authorise the Office of National Security (ONS) to engage in a Public Health Emergency response and this legislation provided for the engagement of ONS with all other areas of government, especially the Ministry of Health, in responding to the Ebola Virus Disease outbreak. The external review team believed that the ONS made a substantial and effective contribution to the control of EVD epidemic, a situation of protracted dread to the population, without a break down in Law and Order or undermining public confidence in the democratic structures of Sierra Leone. This is regarded as a remarkable achievement and demonstrates high level of capability for integration of security with public health emergency response in Sierra Leone.

Further points: The Public Health Ordinance 1960 provided the legal basis to deploy security agencies in response.

Further enabling legislation was also available and effectively used including

A Standing Order to enact joint deployment of the military and police during civil emergencies (including public health emergencies)

Military Aid to Civilian Populations Act (MacP)

These structures and resources and powers supported quarantine, detention of individuals believed to pose a risk to public health and actions to minimise public movement and mixing.

Recommendations for Priority Actions

- Create a formal agreement to give guidance and improve coordination and collaboration between all stakeholders
- Formalise agreement between security and health at points of entry

Indicators and Scores

R.3.1 Public Health and Security Authorities, (e.g. Law Enforcement, Border Control, Customs) are linked during a suspect or confirmed biological event

<mark>**Score 4:** At least 1 public health emergency response or exercise within the previous year that included information sharing with Security Authorities using the formal MOU or other agreement (i.e., protocol)</mark>

The score was revised up to 4 following review by the panel in the light of the strengths and best practices noted below.

Strengths/ Best Practices

- Legislation is in place with provision explicitly linking Public health and security authorizations
- Government Institutions are empowered to collaborate during emergency situations as needed
- These were show to work effectively during the EVD epidemic without compromising democratic institutions
- Situation reports were regularly shared between security and public health at regional and national levels
- Security authorities attended and participated in the EOC
- Security agencies successfully worked with health agencies throughout the prolonged EVD emergency
- Effective structures have been enhanced an enriched as a result of the EBD epidemic response
- 119 Hotline serves for all hazards notification and generates an alert to the National Security Situation Room.
- ONS has had a multi hazard contingency plan since 2007 that has been exercised by multiple different civil emergencies.

Areas which need strengthening/Challenges

- Need to strengthen integration of Ministry of Food Fisheries and Agriculture veterinary medicine and animal health to strengthen surveillance for emerging or re-emerging zoonoses.
- Need for SOPs for different types and levels of engagement would be useful to further optimize coordination and response.
- Challenge of constrained resources.

Relevant Documentation

District Disaster management committee hand book

Public Health Ordinance   Act No. 23 1960

Medical Countermeasures and Personnel Deployment

Introduction

Medical Countermeasures (MCM) are vital to national security and protect nations from potentially catastrophic infectious disease threats. Investments in MCM create opportunities to improve overall public health. In addition, it is important to have trained personnel who can deploy in case of a public health emergency for response.

Target

A national framework for transferring (sending and receiving) medical countermeasures and public health and medical personnel among international partners during public health emergencies.

Sierra Leone Level of Capabilities

During the final months of the EVD epidemic, and subsequently during an outbreak of measles, the Government of Sierra Leone was successful in providing regulatory and logistic oversight for the procurement, distribution, and administration of vaccine counter measures to combat disease transmission. While these actions were taken in the context of significant threats to public health, currently the country's plan for the procurement and utilization of MCMs is not specific for emergency situations. The country's principal authority for MCMs is the Pharmacy Board of Sierra Leone (PBSL). The MCM plan established by PBSL dictates procedures and decision making with regard to MCM receipt and distribution. PBSL has regulatory oversight over MCM utilization and is responsible for assessing the quality, efficacy, and safety of MCMs used in country. In emergency situations, MCMs are distributed through the CMS network using existing distribution matrices. PBLS has dedicated personnel resources for receipt, tracking and distribution of MCMs.

The country participates in regional partnerships through the Mano River, ECOWAS, and WAHO collectives. These partnerships include agreements to facilitate the sending and receipt of MCMs within the region for example during emergencies or under shortage conditions. The Ministry of Health and Sanitation of Sierra Lone also has a formal relationship with GAVI (the Vaccine Alliance), which supports cost-sharing procurement and utilization of vaccines to prevent infections of childhood. Currently Sierra Leone lacks the capacity to manufacture MCM (vaccines and drugs).

Access to veterinary countermeasures (VCMs) is severely limited.

A best practice in evidence during the 2015 Ebola vaccine trial ("STRIVE") was the close working relationship between the PBSL and SLESRC (Sierra Leone Ethics and Scientific Review Committee). This collaboration ensured that the utilization of the MCM (Ebola vaccine) was accomplished in full compliance with the regulatory standards governing use of investigational medical products, and that consideration was given to public health and research ethics in a manner specific to local populations.

Regarding sending and receipt of medical and public personnel during emergencies, the MoHS does not have a formal, approved plan, but a service level agreement exists with non-government implementing partners. The service level guides procedures and decision-making related to sending and receiving health personnel, and addresses regulatory and licensure concerns related to the receiving of health personnel from outside country, including training criteria and standards for health personnel who will be sent or received. The agreement does not address liability, safety, or financing.

Recommendations for Priority Actions

- Development and/or updating of plans to direct the procurement, distribution, and utilization of MCM & the exchange of medical, public health and veterinary personnel on an emergency basis.
- Expand stocks of MCM (e.g., vaccines, antibiotics, infection control supplies, rapid diagnostic tests, etc.) to cover all-hazard emergency contingencies, including zoonotic infections.
- Enter agreements with MCM manufactures and distributors to accommodate accelerated procurement of MCM during public health emergencies.
- Improve access to Veterinary countermeasures by leveraging existing supranational partnerships, for example OIE Canine Rabies Vaccine Bank.
- Develop distribution matrix for Veterinary countermeasures for utilization at both national and regional levels

Indicators and Scores

R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency

Score 2: Plans have been drafted that outline system for sending and receiving medical countermeasures during public health emergencies

Strengths/ Best Practices
- The GoSL has an exercised plan housed within the PBSL that identifies procedures to receive and provide quality assurance for MCMs.
- MCM are efficiently distributed thru the CMS using dedicated, trained personnel.
- The GoSL Country has, in collaboration with external partners, successfully deployed MCMs within the last 12-24 months to halt the spread of infectious diseases in at-risk communities

Areas which need strengthening/Challenges
- Country plans for emergency use of MCMs have yet to be finalized, and no plans are under consideration for veterinary countermeasures.
- Sierra Leone currently lacks capacity to produce medical commodities for use in human or veterinary medicine.
- Agreements could be put in place with manufacturers to procure MCM expediently during public health emergencies.
- Enhanced access to veterinary medical countermeasures is urgently needed.

R.4.2 System is in place for sending and receiving health personnel during a public health emergency—Score: #

Strengths/ Best Practices
- A Service-level agreement in place between MOHS and GoSL, and NGO partners to send and receive health personnel.

Areas which need strengthening/Challenges
- There is currently no plan that incorporates procedures to send and/or receive health personnel during emergency situations.
- The current Service-level agreement doesn't address liability, safety, or financial considerations.
- Other sectors (animal, environmental, etc.) are not included in service level agreement.
- No triggers for requesting personnel from other countries, nor procedures for training those that arrive in country, currently exist.

Relevant Documentation
- *Distribution matrix from CH-EPI logistics for measles vaccines*
- *Measles Campaign Report (EPI)*
- *Importation documents for medical countermeasures*
- *MOU / Agreement between Guinea, Liberia, and Sierra Leone*
- *CMS workplan manual*
- *Copy of Draft Pandemic Preparedness Plan*
- *Draft legislation for animal disease control (2016)*

Risk Communication

Introduction

Risk communications should be a multi-level and multi-faceted process which aims at helping stakeholders define risks, identify hazards, assess vulnerabilities, and promote community resilience, thereby promoting the capacity to cope with an unfolding public health emergency. An essential part of risk communication is the dissemination of information to the public about health risks and events, such as outbreaks of diseases. For any communication about risk caused by a specific event to be effective, the social, religious, cultural, political, and economic aspects associated with the event should be considered, as well as the voice of the affected population. Communications of this kind promote the establishment of appropriate prevention and control action through community-based interventions at individual, family, and community levels. Disseminating the information through the appropriate channels is essential. Communication partners and stakeholders in the country need to be identified, and functional coordination and communication mechanisms should be established. In addition, the timely release of information and transparency in decision making are essential for building trust between authorities, populations, and partners. Emergency communications plans need to be tested and updated as needed.

Target

State parties should have risk communication capacity which is multi-level and multi-faced real time exchange of information, advice and opinion between experts and officials or people who face a threat or hazard to their survival, health or economic or social well-being so that they can take informed decisions to mitigate the effects of the threat or hazard and take protective and preventive action. It includes a mix of communication and engagement strategies like media and social media communication, mass awareness campaigns, health promotion, social mobilization, stakeholder engagement and community engagement.

Sierra Leone Level of Capabilities

Sierra Leone has formal government arrangements and systems in place for risk communication with Standard Operating Procedures (SOPs) and capacity with multisector and multi stakeholder involvement. Allocation and alignment of human and financial resources are however insufficient. Effective, regular communication coordination with partners exists at different levels. Coordination was tested by simulation exercise at national and district levels. There are existing IEC materials with messages on different subject matter areas such as cholera, Lassa fever and preparedness that are updated to suit the emergency and disseminated. There is regular dissemination of information on human public health issues however communication related to human health is lagging behind.

Stakeholders: Office of the president, Office of national Security, MAFFS, WHO, UNICEF, FAO

Recommendations for Priority Actions

1. Finalize the Public Health National Emergency Operation Centre (PHNEOC) Communications Strategic plan
2. Develop a training policy to meet the capacity gaps in risk communication
3. Establish a formal mechanism to coordinate communication with the private sector during an emergency
4. Allocate a dedicated budget line in MOHS and MAFFS for addressing communications response
5. Sustain feedback loops between district teams and communities within localities

Indicators and Scores

R.5.1 Risk Communication Systems (plans, mechanisms, etc.)

Score 3: Formal government arrangements and systems in place with standard operating procedures and capacity with multisectoral and multi-stakeholder involvement, but insufficient allocation and alignment of human and financial resources

Strengths/ Best Practices

- Risk communication is addressed in national response plan
- MoHS has internal regulations that guide clearance of public communications before being sent to media during emergencies. The CMO or EOC incident manager must approve of the message before it goes out to media.
- There are designated permanent staff dedicated to risk communications during emergencies;
- There is sharing of information and communications plans between other multi-sectoral response agencies and media through the communication pillar in an emergency response. The communication pillar meets even in the absence of emergencies.
- During emergencies, there is a designated Government Department-the Ministry of Information that responds to public information

Areas which need strengthening/Challenges

- There is no dedicated budget for emergency risk communications;
- Communication plan never tested;
- No schedule trainings for risk communications;
- Communications response staff have not been trained on response plan changes;
- Inadequate technical and financial support to implement plan

R.5.2 Internal and Partner Communication and Coordination

Score 4: Effective, regular communication coordination with all partners required by all preceding levels, and their coordination tested by a simulation exercise or tested by a real health emergency

Strengths/ Best Practices

- There are policies for coordinating internal communications during emergency and non-emergency response;
- There is a policy to coordinate communications among national stakeholders and response agencies during emergencies;
- Formal mechanisms to coordinate communications with hospitals and health care sector during emergency through the directorate of hospital and lab services of MOHS exist;

- Formal mechanism to coordinate communications among civil society orgs during an emergency through PHEMC exists;
- A desktop simulation exercise was held at nation level in Nov 2015 and at district level.
- There is also a newsletter produced at PHNEOC shared with 15 countries in WAHO. Contact is maintained with media journalist and health communications in the WAHO.

Areas which need strengthening/Challenges

- No formal mechanism to coordinate communications with private sector during emergencies;
- There is limited funding to support partner communication and coordination
- Communication response plans not regularly developed together with external partner and stakeholders.

R.5.3 Public Communication

Score 3: Level 2 (limited capacity) plus proactive public outreach on a mix of platforms (newspapers, radio, TV, social media, web) as appropriate according to national and local preferences; and in relevant national and local languages and otherwise understandable to populations. Use of locally relevant technologies for public communications (mobile phones, etc.)

Strengths/ Best Practices

- SOPs for public communications within MOHS media and communications dept exists.;
- There is a designated public relations officer who is the official MOHS spokesperson;
- MOHS has media monitoring and liaison officers who maintain social media pages of the PHNEOC and analyze media data to inform messages;
- Communications is provided to local radio stations in local languages, Mende, Temne as needed by audience;
- During outbreak, messaging on EVD was provided through radio, social media and telephone messages, jingles, etc.
- Press briefings held regularly to publicize EOC activities and newsletters and bulletins are disseminated regularly

Areas which need strengthening/Challenges

- No operational research on communications methods for behavioral change during emergencies;
- No experience sharing and new strategies with partner organizations to continually improve communication response
- Public communication on animal health issues lagging behind

R.5.4 Communication Engagement with Affected Communities

Score 2: Community level engagement system is semi-formed with mapping of existing processes, programmes, partners and stakeholders. Social mobilization, behavior change communication and community engagement are

Strengths/ Best Practices

- There is a social mobilization unit at national level, DHMT and within the social mobilization pillar in the PHNEOC;
- The health education department has community engagement activities/ outreach in neighbourhoods and villages during health emergencies;
- DHMT community engagement functions work in vertical fashion that enables nation level leadership to both learn from district levels and share lessons learned with other DHMTs;
- Regular and rapid change messaging are developed to address audience feedback, mis-information and question
- New messaging was immediately developed to reflect policy on swabbing of corpses that was altered on June 30, 2016.
- Students from university undergoing training in communication are attached to MOHS for internships

Areas which need strengthening/Challenges

- Feedback loop between at risk and affected populations and response agencies are no longer active.
- Limited funding to strengthen community engagement with affected/at risk communities

R.5.5 Dynamic Listening and Rumour Management

Score 3: Routine and event-based systems for listening and rumour management or ongoing system with limited or unpredictable influence on the response

Strengths/ Best Practices

- Media monitoring unit of EOC monitor and address rumours and misinformation;
- Ad hoc rumour monitoring methods through public health workers, social media platforms of EOC and toll free 117 also exist
- MOHS has trained frontline health workers on maintaining rumour log books and verification;
- Media monitoring team gathers responses from across various outlets to evaluate the effectiveness of the changed messaging.
- During EVD, MOHS media and communications redesigned some risk communications messages to counter rumours and misinformation and ensure message consistency

Areas which need strengthening/Challenges

- No method to monitor the effectiveness of methods or messages used to disprove rumour or correct information
- Community resistance to rumours during the EVD response

Relevant Documentation

- Draft strategic communications plan of the PHNEOC
- Communication coordination member database
- TORs of the PHNEOC communication pillar
- Weekly media monitoring report
- Press briefings from swabs
- Minutes of social mobilization pillar meeting 6 Sept. 2016

OTHER

Points of Entry

Introduction
All core capacities and potential hazards apply to Points of entry and thus enable the effective application of health measures to prevent international spread of diseases. States Parties are required to maintain the core capacities at the designated international airports and ports (and where justified for public health reasons, a State Party may designate ground crossings) which will implement specific public health measures required to manage a variety of public health risks.

Target
States Parties should designate and maintain the core capacities at the international airports and ports (and where justified for public health reasons, a State Party may designate ground crossings) which implement specific public health measures required to manage a variety of public health risks.

Sierra Leone Level of Capabilities
The country has four designated Ports of Entries (PoEs); Lungi international airport, Queen Elizabeth II sea-port, Gbalamya ground crossing to Guinea and Jemdema ground crossing to Liberia. In addition to these designated ports of entries, 30 international land crossing points are identified by the national migration policy (15 July 2014).

The port health at Lungi airport is managed by staff from MOHS with capacity building being supported by IOM. There are SOPs for exit and entry screening used during the EVD outbreak, an Airport Emergency Plan that includes a health component and reports of assessments conducted by MOHS/IOM and CDC (May 2016) and CAPSA March 2015. Two stand by Ambulances owned by the MOHS and trained staffs for safe referral and transfer of ill travellers are available at Lungi international airport. SOPs for Vector control are included in the airport Public Health SOPs.

The Airport clinic has not been operational for over two years. There are designated isolation/screening room structured at the arrival and departure halls but no functional after the end of Ebola outbreak. The two ambulances have no assigned drivers. When need arises, Lungi Hospital (3Kms away) makes the drivers available.

No routine inspection is done by MOH at the point of entries. The country does not have a specific public health emergency contingency plan for PoEs except draft National Aviation Public Health Emergency Preparedness Plan s for Lungi international airport. PoEs other than Lungi international airport do not have SOP, MOU and trained staff for safe referral and transfer of ill travellers to appropriate medical facilities

Recommendations for Priority Actions
1. Develop policy, SOPs, guidelines, and plans for Port Health
2. Conduct capacity assessment at major border crossing points and establish PoEs for designation
3. Establish/strengthen routine inspection program at PoEs with 24 hours appropriate services
4. Finalise the National Aviation Public Health Emergency Preparedness Plan

Indicators and Scores

PoE.1 Routine capacities are established at PoE

Strengths/ Best Practices

Sierra Leone has designated four PoEs which includes one airport, one seaport and two ground crossings. Three of the four designated PoEs have space for isolating of suspected patients. In 2015, 41 staffs from the designated PoEs were trained on inspection of conveyances. An Airport Emergency Preparedness Plan that includes a health component is available in Lungi international airport. There is an SOP for transfer of ill travellers in Lungi international airport and staff are trained for safe referral and transfer of ill travellers. There are two standby ambulance in Lungi international airport. Capacity assessment of PoEs has been conducted in Lungi and Koinadugu. Some screening is being conducted; screening of vaccination certificates at Lungi and at the ground crossing and temperature checking at ground crossings. SOPs for exit and entry screening used during the EVD outbreak is available.

Areas which need strengthening/Challenges

The designated PoEs should have enough space, equipment, and trained staff to implement the IHR (2005) activities required at the PoE. All competent authorities at the PoEs must be sensitized about the roles and requirements of the IHR (2005) and should develop action plan to implement the regulations. Assigning of drivers to the Ambulances in Lungi international airport is crucial for fast transportation of ill travellers. The designated PoEs should have a memorandum of understanding with the nearby hospitals for patient referral system. Conducting and maintaining regular screening and inspection at the PoEs and implementing the necessary corrective measures need to be considered. An emergency preparedness and response plane for PoEs should be developed involving key stakeholders and partners. Surveillance system for both public health and animal health should be established and linked to the national surveillance system.

PoE.2 Effective Public Health Response at Points of Entry

Strengths/ Best Practices

Sierra Leone developed draft national aviation public health emergency preparedness plan for Lungi international airport which is integrated with other national response plans. Moreover, cholera preparedness plan and draft public health emergency response plan is available. A capacity assessment was conducted in Lungi international airport and Jemdema (Koinadugu district).

Areas which need strengthening/Challenges

Developing public health emergency contingency plan specific to the PoEs, system for transfer of ill travellers from the PoEs to appropriate medical facilities and conducting capacity assessment/evaluation of the rest two PoEs is crucial. Moreover, maintaining a continuous communication between the IHR NFP and the competent authorities at the PoEs must not be overlooked.

Relevant Documentation

- The Public Health Ordinance of 1960: Part 2 - Administration (page11) sanctioned the Environmental Health Division to serve as Port Health Authority. Evidence of document is available.
- Report of Lungi Airport assessment conducted in May 2016
- Integrated vector control policy, strategy, and SOP
- Checklist for premises inspection in Sierra Leone
- School Curriculum for Community Health - Njala University
- Copy of the Draft National Aviation Public Health Emergency Preparedness Plan

Chemical Events

Introduction

State parties should have surveillance and response capacity for chemical risk or events. It requires effective communication and collaboration among the sectors responsible for chemical safety, industries, transportation, and safe disposal

Target

State parties should have surveillance and response capacity for chemical risk or events. It requires effective communication and collaboration among the sectors responsible for chemical safety, industries, transportation, and safe disposal.

Sierra Leone Level of Capabilities

There are several stakeholders involved in the management of chemicals in Sierra Leone, including the Office of the President (the President is also the Minister for the Environment), the Ministry of Energy and the Environmental Protection Agency (EPA), the Office for National Security (ONS), Ministry of Agriculture, Forestry, and food Security (MAFFS), Ministry of Trade and Industry and the Ministry of Health and Sanitation (MOHS).

Sierra Leone has ratified many global conventions relating to chemical management, including the Stockholm Convention on persistence organic pollution and Marine Pollution (MARPOL), Basel Convention and Rotterdam Convention and the Minamata convention on Mercury and UN FCCC (Paris Agreement). Sierra Leone is also part of SAICM (the Strategic Approach to International Chemicals Management).

The country has established an Environment Protection Agency by an Act of Parliament in 2008 (As amended 2010) and has the overall mandate to effectively protect and sustainably manage the environment and natural resources to ensure a quality environment adequate for human health and wellbeing of all Sierra Leoneans. National policies or plans or legislation for chemical event surveillance alert and response exist and there is a 5-year strategic plan in place. They have also established a process for assessing (with the MOHS) clinical waste management practices in Government Health Care Facilities in Freetown.

Sierra Leone has not been involved in responding to a major chemical event and legal tools relating to several aspects of chemical management and more work is required to strengthen multi-sectoral working, particularly in relation to case management (e.g. decontamination); clinical management (e.g. toxicology) and surveillance, assessment, and management of chemical events.

Recommendations for Priority Actions

1. Develop a strategic plan for chemical safety.
2. Develop comprehensive guidelines or manuals on surveillance, assessment, and management of chemical events to support the implementation of the strategic plan for chemical safety
3. Establish a coordination mechanism nationally and at regional and district levels for the detection and response to chemical events/emergencies, to include a public health plan for chemical incidents/emergencies
4. Advocate for an increase in the number of human resources to meet the needs for chemical safety

Indicators and Scores

CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies

<mark>**Score 2:** Guidelines or manuals on the surveillance, assessment and management of chemical events, intoxication and poisoning are available</mark>

Strengths/ Best Practices

Surveillance is in place for chemical events, intoxication, and poisonings but with limited access to laboratory capacity to confirm priority chemical events. The focus is mainly on the monitoring of water bodies around companies and this is done by the EPA in close collaboration with laboratories and institutions (including private laboratories, laboratories outside of the country and UNEP). Environmental quality monitoring committees were established in 2015 and investigation reports on chemical surveillance and monitoring are produced at regular intervals. Feedback on data and response activities in these areas are also provided. A pilot air quality project has been conducted in Freetown and will be expanded to network multiple air monitors. Air quality has become a primary environmental health concern in many large cities across the world. Adding air quality monitors will help identify major pollutants and expand technical capacity to understand potential chemical release events.

Good collaboration has been established between the EPA and the police through the Environmental Crime Unit which participates in enforcement exercises

Areas which need strengthening/Challenges

Whilst the EPA monitors immediate water bodies around companies, it would be good to strengthen this to cover other matrices such as air, soil, deposition and vegetation, not just around companies but also in areas where the population may be potentially exposed to chemical contaminants (e.g. population living near to waste sites or polluted water).

- There is no comprehensive guidelines or manual for holistic surveillance, assessment and management of chemical events
- Chemical incident surveillance only includes water and does not include other matrices such as air, soil, deposition, or vegetation
- There is no efficient information flow in chemicals surveillance/monitoring
- The laboratories have limited capacity. EPA works with some private laboratories and laboratories in the University of Sierra Leone, but none are certified
- There is no coordination mechanism for detection and responding to chemical events at regional and district levels
- There is no poison centre in Sierra Leone and no syndromic surveillance mechanisms or formal approaches for dealing with chemical poisonings.

CE.2 Enabling environment is in place for management of chemical Events

<mark>Score 2: National policies or plans or legislation for chemical event surveillance alert[2] and response exist</mark>

Strengths/ Best Practices

A draft chemical legislation is under development and should be ratified soon. Chemical control and management of pesticides are being developed. A multi-sectoral coordination committee was established in 2012. There is a disaster Management department at the ONS. There is also a performance audit system for exercises/responses and a database for chemicals is available. Sierra Leone has signed up to several international conventions including SAICM, Stockholm Convention on persistence organic pollution and Marine Pollution (MARPOL). The following environmental agreements have also been ratified: Basel, Rotterdam, Minamata convention on Mercury and the UN FCCC (Paris Agreement).

An example of good practice is the development and establishment of a joint assessment between the Environmental Protection Agency (EPA) and the Ministry of Health and Sanitation (MOHS) on clinical waste management practices in Government Health Care Facilities in Freetown.

Areas which need strengthening/Challenges

- There is no strategic plan for chemical safety
- There is no public health plan for chemical incidents/emergencies
- Limited coordination mechanism at regional and district levels
- There is no Memorandum of Understanding with other laboratories except SL Standards Bureau
- There are no protocols/guidelines for case management regarding chemical hazards
- There is no poison centre

Relevant Documentation

- EPA Act
- Draft Chemical Management Act
- EPA Strategic Plan 2012/2016
- Chemical Safety Monitoring check list and activity report
- TOR of Chemical Safety multi-sectoral/interdisciplinary committee
- Copy of MOU with SLSB
- Chemical Safety Monitoring check list and activity report
- Report on assessment of persistent organic pollutants
- Chemicals database

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

Radiation Emergencies

Introduction

State parties should have surveillance and response capacity for radio-nuclear hazards/events/emergencies. It requires effective communication and collaboration among the sectors responsible for radio-nuclear management.

Target

State parties should have surveillance and response capacity for radio-nuclear hazards/events/emergencies. It requires effective communication and collaboration among the sectors responsible for radio-nuclear management.

Sierra Leone Level of Capabilities

In Sierra Leone, the Nuclear Safety and Radiation Protection Authority (NSRPA) leads on radiological issues and in doing so has established a number of collaborations with other ministries including collaboration with the Ministry of Health and Sanitation on inspection and enforcement facilities; ONS on radiological concerns; and the EPA on environmental concerns with regard to ionizing and non-ionizing issues. The Ministry of Trade and Industry regulates (?) the sale and transfer of radioactive/nuclear sources whilst the Ministry of Transport and Aviation is engaged in the safe and secure transport of radioactive sources from the point of entry to the relevant facility. The International Atomic Energy Agency (IAEA) provides technical support, trainings, and relevant logistics to the NSRPA whilst the WHO provides technical advice with respect to human and animal health. NSRPA has close links with CDC during radiological accidents leading to the establishment of a likely disease.

Sierra Leone has enacted a Nuclear Safety and Radiation Protection Act with basic regulations completed- some areas including transport, air and regulations are under development. The country has established a Nuclear Safety and Radiation Protection Authority (NSRPA) responsible for radiological and nuclear events with a designated focal point for coordination and communication with relevant stakeholders. Sierra Leone has also adopted the IAEA guidelines into its regulations. The existing radiation monitoring mechanism in the country requires a more comprehensive risk assessment tool that will include transport and other areas.

Recommendations for Priority Actions

1. Advocate for an increase in the number of human resources to meet the needs for radiation safety
2. Improve lab capacity for detection and response to all radiological and nuclear emergencies
3. Incorporate response to chemical and radiological emergencies in the draft Public Health Incident and Emergency Response Plan
4. Allocate sufficient budget to meet demand in the event of a radiation emergency
5. Conduct simulation exercises for response to radiation emergency

Indicators and Scores

RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies

==**Score 2:** National policies, strategies or plans for the detection, assessment, and response to radiation emergencies are established and radiation monitoring mechanism exists for radiation emergencies that may constitute a public health event of international concern==

Strengths/ Best Practices

- A Nuclear Safety and Radiation Protection Act was enacted in 2012
- A Nuclear Safety and Radiation Protection Authority (NSRPA) was established in 2000
- A monitoring system of consumer products regarding radiation hazards is being established
- IAEA guidelines – basic regulations were adopted for Sierra Leone
- Lab facilities are available for analysis of Alpha, Beta, Gamma, X-ray, and Neutron

Examples of best practice include the retrieval of a Cs-137 radioactive source from a scrap metal collection from a dwelling house at Kissy in 2013; country wide monitoring of x-ray generators in hospitals; and inspecting mineral ores to ensure the radiation levels meet international standards

Areas which need strengthening/Challenges

- Insufficient number of human resources to meet the needs for radiation safety
- Lab facility to be upgraded (SSDL) for radio-nuclear sources
- There are no protocols/guidelines for case management regarding radio-nuclear hazards
- There are no reference health care facilities for management of radiation emergencies
- There is inadequate funding to meet the needs for radiation safety

RE.2 Enabling environment is in place for management of Radiation Emergencies

==**Score 2:** 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==

Strengths/ Best Practices

- The country has a Nuclear Safety and Radiation Protection Strategic Plan
- The country has an annual operational plan for Nuclear Safety and Radiation Protection
- The country has a Public Health Incident and Emergency Response Plan
- There is a MOU for collaboration with the Environment Protection Agency (EPA)
- The country just concluded a training on Security in Transporting Radioactive materials
- Good collaboration with the ONS, police, military for joint planning in readiness to terrorist threat
- Good collaboration with EPA

Areas which need strengthening/Challenges

- The draft Public Health Incident and Emergency Response Plan does not include response to chemical and radiological emergencies
- In the event of a radiation emergency, there is no evidence of budget readily available to meet additional demands
- No simulation exercise for radiation emergency response
- Inadequate coordination among stakeholders

Relevant Documentation

- Nuclear Safety and Radiation Protection Act 2012
- Nuclear Safety and Radiation Protection Strategic Plan
- The draft Public Health Incident and Emergency Response Plan
- Radiation Safety self-assessment report & assessment tool
- Report on Workshop on Security in Transporting Radioactive Material
- Copy of MOU with the EPA

Appendix 1: Joint External Evaluation Background

Mission Place and Dates

Freetown, Sierra Leone; October 31 – November 4

Mission Team Members:

Names	Country (or Affiliate Multilateral)	Agency
Dr Ambrose Talisuna (Team Lead)	Congo	WHO/AFRO
Dr Daniel Yota	Burkina Faso	WHO/AFRO/IST-W
Dr Sally-Ann Ohene	Ghana	WHO/WCO
Mr. Haftom Taame Desta	Ethiopia	AU-CDC
Dr. Daphne Moffett	USA	Atlanta CDC
Dr. Mary Reynolds	USA	Atlanta CDC
Ms. Nathalie Roberts	USA	Atlanta CDC
Dr. Sabine Flessenkämper	Germany	GIZ
Dr Bengu Said	England	PHE
Dr. Raquel Duarte-Davison	England	PHE
Dr. Mark Reacher (Team Co-Lead)	England	PHE
Mr. Thomas Nagbe	Liberia	MoH
Dr. Cheikh S. Fall	Senegal	APHIS
Mr. Roland K. Wango	Congo	WHO/AFRO

Objective

To assess Sierra Leone's capacities and capabilities relevant for the 19 technical areas of the JEE tool to provide baseline data to support Sierra Leone's efforts to reform and improve their public health security.

The JEE Process:

The Joint External Evaluation process is a peer to peer review. As such, it is a collaborative effort between host country experts and External Evaluation Team members. The entire external evaluation, including discussions around the scores, the strengths, the areas which need strengthening, best practices, challenges, and the priority actions should be collaborative, with external evaluation team members and host country experts seeking full agreement on all aspects of the final report findings and recommendations.

Should there be significant and irreconcilable disagreement between the external team members and the host country experts or among the external or among the host country experts, the External Evaluation Team Lead will decide the outcome; this will be noted in the Final Report along with the justification for each party's position.

Preparation and Implementation of the Mission
- Held weekly teleconferences on the mission
- Searched for team lead and co-lead
- Put together JEE team
- Shared self-assessment report and other technical documents with JEE team
- Provided logistic assistance to JEE team
- Liaised with WHO Eritrea Country Office for routine update on preparations
- Dispatched Advance Team from WHO/AFRO to provide technical and logistics support
- Ensured smooth coordination and implementation of the JEE

Limitations and Assumptions
- The evaluation was limited to one week's time which limited the amount and depth of information which could be managed.
- It is assumed that the results of this evaluation will be made publicly available.
- The evaluation is not an audit and information provided by Sierra Leone will not be independently verified. Information provided by Sierra Leone will be discussed and evaluation rating will be mutually agreed to by the Host Country and evaluation team. This is a peer to peer review.

Key Host Country Participants and Institutions

S. No	Names of Participants	Organization
	Government of Sierra Leone	
1	Dr. Amara Jambai	MOHS, Chief Medical Officer II
2	Dr. Foday Dafae	MOHS- Director DPC
3	Dr. Ansumana Sillah	MOHS-Director DEH
4	Dr Sorie Mohamed Kamara	MAFFS - Director Livestock and Veterinary Services
5	Dr Tejan Jalloh	MAFFS- Acting Deputy Director Animal Health Veterinary Disease Surveillance
6	Dr. Abdul Gudush Jalloh	MAFFS- Acting Assistant Director Animal Health
7	Dr. Alie H. Wurie	MOHS- DPC
8	Dr. James Akpablie	MOHS DPC/Commonwealth
9	Roland M. Conteh	MOHS- DPC/Surv' Programme Manager
10	Harold Thomas	MOHS- DPC
11	Festus Amara	MOHS- DPC
12	Mohammed Baba Jalloh	MOHS- DPC
13	Rebecca Neala	MOHS- DPC
14	Doris Harding	MOHS-CPHRL
15	Dauda Kamara	MOHS-CPHRL
16	Agnes k. Dumbuya	MOHS-CPHRL
17	Fatmata Barrie	MOHS-CPHRL
18	Zein Sama	MOHS-CPHRL
19	Manso S. Kargbo	MOHS

20	Fatmata B. Jalloy	MOHS
21	Fay Charlobah	MOHS
22	Benjamin Bangura	MOHS
23	Anthony Foday	MOHS-DEH
24	Edward Kamara	MOHS-DEH
25	Charles Ngombu	MOHS-DEH
26	Allieu B. Kamara	MOHS-DEH
27	Juliana Kamanda	MOHS-DEH
28	Christiana Fortune	MOHS-DEH
29	Ahmed J. Samba	MOHS-Lab
30	Sabiatu Bakar	ONS
31	Nathaniel Kaiba Kamara	ONS
32	Lovetta Joanah	EPA-Sierra Leone
33	Bashir Kargbo	EPA-Sierra Leone
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2	Alex Chimbaru	WHO/MOH coordination
3	Harry Opata	WHO - Sierra Leone
4	Charles Njuguna	WHO - Sierra Leone
5	Tobin Ekaete	WHO - Sierra Leone
6	Shikanga O-tipo	WHO - Sierra Leone
7	Otim Patrick	WHO - Sierra Leone
8	Anderson Latt	WHO - Sierra Leone
9	Asfaw T. Yonas	WHO - Sierra Leone
10	David Mwathi	WHO - Sierra Leone
11	Robert Musoke	WHO - Sierra Leone
12	Lisa Carter	WHO - Sierra Leone
13	Eric Osoro	WHO - Sierra Leone
14	Brian Asiimwe	WHO - Sierra Leone
15	Refaya Ndyamuba	WHO - Sierra Leone
16	Wilson Gachari	WHO - Sierra Leone
17	Tonny Musoke	WHO - Sierra Leone
18	Kilinda Kilei	WHO - Serra Leone
19	Tesfai Tseggai	FAO - Sierra Leone
20	Nyabengi Tito Tipo	UNFAO - Sierra Leone
21	Sanusi Savage	IOM Sierra Leone
22	Sara Hersey	US CDC Director, Sierra Leone
23	Regan Hartman	US CDC, Sierra Leone
24	Daniel Martin	US CDC
25	Sarah Bennett	US CDC
26	Dorothy Peprah	USAID
27	Slacy Lama	US Embassy

28	Isattu Wurie	APHL/LTWG
29	Tao Shen	China CDC
30	Ian Rufus	Public Health England
31	James Bangura	Metabiota - PREDICT

Supporting Documentation Provided by Host Country

<This section to be filled out by "TBD" and should include a list of all preparatory materials as well as presentations and materials presented during the assessment week.>