

JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES

of

STATE OF ERITREA

Mission report:
October, 2016



**World Health
Organization**

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Executive summary

This report presents the World Health Organization (WHO)-led International Health Regulations (IHR 2005) core capacity assessment using the IHR joint external evaluation (JEE) tool. A multisectoral team of experts (nominated by the JEE secretariat) participated in the week-long assessment, which took place during 3–8 October 2016, in Asmara, Eritrea. Eritrea is the fifth country to volunteer for the JEE, after Ethiopia, Liberia, Mozambique and Tanzania. All 19 technical areas were assessed. Eritrea first completed a self-assessment using the JEE tool. The results of this assessment, including its self-assessed scores for the 19 technical areas, were then presented to the external evaluation team. The external evaluation team and host country experts then participated in a facilitated discussion to jointly assess Eritrea's current strengths, areas that need strengthening and priority actions. Scores were developed through a process of consensus. The scores, supporting information and specific recommendations for priority actions are provided under the technical areas sections of this report. The results of the assessment and observations of the Eritrea's health security preparedness in the context of IHR were presented to the Minister of Health (Hon. Minister Amina Nurhussien), senior government officials from different ministries in Eritrea and the WHO Country Representative (Dr Josephine Namboze).

Overarching issues and priority actions

Key best practices

- There is a strong political commitment and technical leadership at all levels (national, zoba and subzoba) to build and sustain the IHR core capacities.
- The foundations for IHR coordination, communication and advocacy have been established at national and subnational levels: including the relevant committees with terms of reference (ToRs), standard operating procedures (SOPs) and manuals. Several laws and legislation also exist to support IHR implementation.
- A workforce strategy/programme is in place and is periodically reviewed for building human resources for health (HRH) capacity and there is suitable HRH capacity at national and subnational levels for both human and animal health sectors.
- The expanded programme of immunization (EPI) is robust and has very high nationwide coverage for routine immunization and can support the rapid delivery of emergency vaccination of most vaccine preventable diseases (VPDs) in the human sector. Moreover, there is capacity for vaccination in the animal health sector too.
- Foundations for a laboratory network system have been established in both the animal and human health sectors.
- A real-time surveillance system has been established that incorporates robust indicator and syndromic surveillance, as well as, event-based surveillance.
- Dynamic listening and rumour management is functional through practical community-led engagement structures with information sharing pathways from village to national levels.
- Although not often systematic, the integration of public health, agriculture, animal health and security sectors is an ongoing best practice that needs to be institutionalized.
- Despite the resource constraints, all relevant sectors are working efficiently and with locally developed know-how and good practices in the detection and response to health emergencies.

Key areas for improvement

- Urgently finalize and implement the national public health and national emergency preparedness and response plan underpinned by the One Health, all hazards and whole-of-government approach.
 - The national public health emergency preparedness and response plan should be integrated with the point of entry contingency plans with IHR-compliant air, sea and designated ground crossings plans.
 - Where feasible, cross-border collaboration/initiatives should be addressed during the development of the multi-hazard public health emergency preparedness and response plan.
 - Fast-track relevant laws and legislation that are in draft form to support multisectoral implementation of IHR.
- Conduct a comprehensive risk assessment, risk profiling, vulnerability and resource mapping for integrated health protection.
- Link and synchronize the timing of the IHR JEE, the development of the health workforce strategy, and the health sector strategic plan to promote effective integration, health system approach, alignment and efficacy.
- Formalize and institutionalize the IHR coordination, communication and advocacy mechanisms at all levels.
- Establish at national level, an emergency operations centre (EOC) with an EOC plan, procedures and incident management system and strengthen rapid response teams at the subnational level.
- Conduct simulation exercises periodically to test the One Health approach and functionality of structures, systems and procedures in all the 19 technical areas, since Eritrea has witnessed very few public health events.
- Streamline policies and processes to enable medical countermeasures and personnel deployment for health emergencies.
- Introduce a field epidemiology training programme (basic, intermediate and advanced). The Asmara College of Health Sciences (ACHS) should explore the possibility of collaboration with the Africa Field Epidemiology Network (AFENET) or other institutions.
- Strengthen event-based surveillance through provision of SOPs and training of all health workers at all levels.
- Develop and periodically review chemical risk assessment and management strategies that are incorporated into whole-of-government and corporate policies, as well as develop a national plan on chemical surveillance and response as part of the national public health security emergency plan.
- Develop national legislation, policies, strategies or plans for the detection, assessment and response to radiation emergencies.
- Ensure sustained funding and provide logistics and human resources to support IHR implementation.

Eritrea 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 (2005)	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 (2005)	2
Antimicrobial resistance	P.3.1 Antimicrobial resistance detection	1
	P.3.2 Surveillance of infections caused by pathogens	1
	P.3.3 Health care associated infection prevention and control programmes	3
	P.3.4 Antimicrobial stewardship activities	2
Zoonotic disease	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	3
	P.4.2 Veterinary or animal health workforce	4
	P.4.3 Mechanisms for responding to zoonoses and potential zoonoses are established and functional	2
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	2
	P.6.2 Biosafety and biosecurity training and practices	2
Immunization	P.7.1 Vaccine coverage (measles) as part of national programme	5
	P.7.2 National vaccine access and delivery	4
National laboratory system	D.1.1 Laboratory testing for detection of priority diseases	4
	D.1.2 Specimen referral and transport system	3
	D.1.3 Effective modern point of care and laboratory based diagnostics	3
	D.1.4 Laboratory quality system	2
Real-time surveillance	D.2.1 Indicator- and event-based surveillance systems	3
	D.2.2 Interoperable, 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 FAO, OIE and WHO	2
	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	3
	D.4.2 Field epidemiology training programme or other applied epidemiology training program in place	3
	D.4.3 Workforce strategy	4
Preparedness	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented	2
	R.1.2 Priority public health risks and resources are mapped and utilized	1

Emergency response operations	R.2.1 Capacity to activate emergency operations	1
	R.2.2 Emergency operations center operating procedures and plans	1
	R.2.3 Emergency operations programme	1
	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	3
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	2
Risk communication	R.5.1 Risk communication systems (plans, mechanisms, etc.)	2
	R.5.2 Internal and partner communication and coordination	3
	R.5.3 Public communication	3
	R.5.4 Communication engagement with affected communities	4
	R.5.5 Dynamic listening and rumour management	3
Points of entry	PoE.1 Routine capacities are established at points of entry	3
	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	1
Radiation emergencies	RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies	1
	RE.2 Enabling environment is in place for management of radiation emergencies	1

PREVENT

National legislation, policy and financing

Introduction

The International Health Regulations (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 a new or revised legislation may not be specifically required, states may still choose to revise some regulations or other instruments in order 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 that 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 of 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 in order 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.

Eritrea level of capabilities

Eritrea has a number of health related articles in its Eritrean Transitional Civil and Penal Codes and other laws in hierarchy legislation. The National Health Policy and the Health Sector Strategic Development Plan II (draft 2017–2021) and other subsector policies/guidelines are also supporting documents to implement IHR. Eritrea conducted IHR core capacities assessment in 2010, identified the gaps and developed an action plan for the period 2012–2014, which was subsequently updated to cover the period 2014–2016. The country conducted an assessment of almost 40 legal instruments (codes, proclamations, regulations, legal notices and conventions) to identify articles that help or impede the implementation of IHR. None of the reviewed articles was likely to hinder the implementation of the IHR. Of the articles reviewed, 10 urge the enforcement of IHR (2005) implementation; the Eritrean Transitional Civil Code and Eritrean Transitional Criminal Code, proclamations, regulations and policies have articles that help in the implementation of IHR. The health sector policy and other subsector policies/guidelines have various sections that support the implementation of IHR. Several guidelines have been updated and recommendations have been implemented, including: the National Inspection and Quarantine Policy guidelines, SOPs and the updated Technical guidelines for Integrated Disease Surveillance and Response (IDSR) (2012). The remaining relevant policies and guidelines are being updated to incorporate IHR (2005) in all sectors. Foundations for multisectoral coordination have been established. However the coordination mechanism needs to be strengthened.

A major gap is the lack of a “public health act” in the country, which is crucial for adequate implementation of IHR and also key in bringing together multisectoral stakeholders. In terms of funding, there is commitment from the Eritrean Government through its Ministry of Finance to meet all costs during unexpected health

threats and the consequences of emergencies including a public health emergency of international concern (PHEIC). However, there is no clear budget line to fund IHR implementation. There is some funding from the Ministry of Finance to the Ministry of Health (MoH) for implementation of IHR, but this is not adequate to address the core capacities required in other sectors. There is also no cross-border protocol/framework for surveillance and response.

The high level of commitment and leadership in the implementation of the IHR (2005) is an opportunity for Eritrea to ensure sustainable funding for IHR implementation and should be exploited to strengthen the One Health approach.

Recommendations for priority actions

- Formulate a “public health act” and incorporate/update other relevant policies and guidelines from other sectors to facilitate the coordination of implementation and sustenance of IHR across all levels.
- Ensure adequate financing for the implementation of IHR across all relevant sectors through the creation of a defined budget line.
- Ensure coordination across sectors by strengthening the existing multisectoral mechanisms that stipulate clear memoranda of understanding (MoUs).
- Fast track the promulgation of all laws that are in draft form, as well as review and update relevant policies and guidelines to incorporate IHR in all sectors.

Indicators and scores

P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR (2005) – Score 2

Strengths/best practices

- Of the 40 national government legal instruments reviewed, none of the large number of articles/provisions hinders the implementation of IHR (2005).
- Several guidelines have been updated and are being implemented, such as the National Inspection and Quarantine Policy guidelines, SOPs and the IDSR technical guideline 2012.
- National Health Policy 2010 is available and the country has developed a Health Sector Strategic Development Plan II (draft 2017–2021).
- IHR (2005) core capacities assessment was carried out in 2010 with gaps identified.

Areas that need strengthening/challenges

- Develop a “public health act” as well as, develop/review SOPs for IHR Implementation at all administrative levels in all the relevant sectors.
- Explore mechanisms to strengthen cross-border agreements, protocols or MoUs with neighbouring countries with regard to shared public health emergencies.

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 2

Strengths/best practices

- There is a high level of commitment and leadership for the full implementation of IHR (2005). The national IHR focal point is accessible at all times (24 hours, seven days a week) and consists of five

people – the IDSR focal person, the World Organisation for Animal Health (OIE) focal person, the points of entry quarantine officer, the food safety focal point and Ministry of Agriculture (MoA) focal point.

- An operational OIE contact point/delegate exists and is housed in the MoA.
- Multisectoral coordination bodies and several legislations are in place.

Areas that need strengthening/challenges

- Strengthen coordination between relevant sectors by developing clear roles and responsibilities, SOPs and guidelines.
- The implementation of regulations, legislation and policies should be reviewed periodically to ensure that all sectors are implementing them at all levels (i.e. national, zonal and subzonal).
- The functions of the national IHR focal point and the OIE delegate need to be evaluated for effectiveness.

IHR coordination, communication and advocacy

Introduction

The effective implementation of the IHR requires multisectoral/multidisciplinary approaches through national partnerships for efficient and alert response systems. Coordination of nationwide resources, including the designation of a national IHR focal point, which is a national centre for IHR communications, is a key requisite for IHR implementation.

Target

The effective implementation of the IHR (2005) requires multisectoral/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 at all times 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.

Eritrea level of capabilities

Eritrea has a national IHR focal point at the national level within the MoH. Government sectors that are key in supporting IHR implementation have been mapped and include: the Office of the President (which coordinates the response to any potential PHEIC); the MoH (which is the designated lead for planning, coordination, monitoring and evaluation of health emergencies); the Ministry of Labour and Human Welfare (MoLHW) (which is designated to planning, coordinating, monitoring and evaluation during disasters); the Ministry of Finance (which leads in mobilization of funds); the Ministry of Local Government (which oversees disasters, provides local leadership and community engagement); the MoA (which deals with zoonotic disease control); partners who provide technical and financial support, capacity building and monitoring and evaluation; and the community who are mobilized and are engaged in event detection. A multisectoral technical committee has been established to support the day-to-day operations of IHR implementation and has clear terms of reference (ToRs). There are additional supporting documents and MoUs to facilitate the coordination of the relevant sectors. A high level Public Health Emergency Task Force consisting of the ministries of environment, justice, energy, agriculture, and health was set up during the Ebola virus disease (EVD) outbreak but has not been operational post the Ebola event. A Public Health Emergency Rapid Response Team (PHERRT) was also formed during the EVD outbreak. A review of the implementation status of IHR (2005) was conducted in 2010 by WHO external experts including an assessment for points of entry, using the WHO monitoring tool. Following the assessments, Eritrea developed a national action plan for 2012–2014. In 2014, the country requested for a two-year extension (2014–2016) to address gaps that were not attained.

In terms of advocacy of IHR across various levels, the annual IHR progress report is shared across all sectors. The national IHR focal point has conducted advocacy and communication capacity building activities for health workers, points of entry workers and other stakeholders. These gains should be duly documented and integrated into the country reporting and should be used as a best practice to strengthen national IHR advocacy and communications strategies for all multisectoral stakeholders at national and zoba levels.

Despite Eritrea having a national IHR focal point in place, its functions have not yet been evaluated for its effectiveness. The IHR multisectoral technical committee meets infrequently because there are no clear mechanisms for its set up, and no clear roles and responsibilities are laid down for the various members.

Contact details for the national IHR focal point exist, but there is inadequate capacity for the national IHR focal point to fulfil this function. The ToRs/SOPs to guide the coordination and working relationship between national IHR focal point, IHR technical committee, IDSR focal person and other subnational levels is not clear and could be enhanced by clear SOPs and a stronger intersectoral collaboration that includes both animal and human health sectors. Additionally, SOPs should be developed to institutionalize information-sharing mechanisms to enhance the functionality of these coordination systems between the national and subnational levels. Presently, there is informal sharing of information between the animal and human health sectors without a clear framework for joint collaboration. Despite a draft action plan, the absence of a national plan, integrating the country's lessons learnt in the context of Ebola preparedness, has been identified as a key hindrance to a comprehensive One Health multisectoral approach. Moreover, the current draft national public health plan does not integrate a multi-hazard approach. It is suggested that the plan should consider incorporating a multi-hazard approach.

Recommendations for priority actions

- Strengthen the high level public health emergency coordination organization to be a comprehensive, multi-hazard, multidisciplinary and multisectoral coordination body to enable the implementation and sustenance of IHR requirements across all sectors and at all levels.
- Improve the operational capacity and mandate of the national IHR focal point with the corresponding resources to fulfil IHR functions. This should be included in the comprehensive multi-hazard plan that is being developed.
- Strengthen the institutional capacity of the IHR Technical Working Group in line with its mandate and develop ToRs, roles and responsibilities, and establish information sharing pathways to adequately implement IHR and support the national IHR focal point.
- Develop SOPs for information sharing between animal and human health sectors, as well as other relevant sectors at all administrative levels.
- Conduct simulation exercises to test coordination and information sharing mechanisms.

Indicators and scores

P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR (2005) – Score 2

Strengths/best practices

- Coordination mechanism between relevant ministries is in place.
- National SOPs or equivalent exist for coordination between the national IHR focal point and relevant sectors.
- High-level multisectoral coordination body was established during the Ebola outbreak.
- A national IHR focal point is constituted and has a high level of professional and operational commitment; there is an IHR technical committee with established ToR. In addition there is an operational OIE contact person in the MoA.
- MoUs that assist in coordination with relevant sectors are in place and there is a Public Health Emergency Task Force constituted at the Director-General level.
- Advocacy and capacity building activities for IHR have been conducted by the national IHR focal point for health workers and points of entry personnel.

- A national Inspection and quarantine policy and SOPs (March 2013) are in place, bolstered by trainings especially at points of entry (Asmara International Airport, Masawa Sea Port, Tessenay Ground Crossing, Assab Sea Port).

Areas that need strengthening/challenges

- There is a need to test the effectiveness of national IHR focal point functions. In addition, the IHR coordination and information sharing systems at national, regional and district levels need to be formalized and tested for functionality.
- IHR Technical Working Group has to be institutionalized, and provided with a clear mandate (with ToRs, roles and responsibilities, frequency of the meetings) to enable it to function effectively in the implementation of IHR (2005). The IHR Technical Working Group should have members from all relevant sectors and should be underpinned in the One Health approach, with formal coordination, planning and information sharing mechanisms.
- There is an urgent need to integrate animal health and a multi-hazard approach under the One Health principles.
- The absence of a comprehensive national preparedness and response plan is a major impediment to the implementation of IHR and there is a need to ensure the finalization and approval of the draft plan.
- There is a need for ToRs/SOPs to guide the coordination and working relationships among the national IHR focal point, IHR technical committee, IDSR focal person, OIE delegate and subnational focal persons for enhanced intersectoral collaboration.

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. Antimicrobial resistance is evolving 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 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. As measured by: (1) Number of comprehensive plans to combat antimicrobial resistance agreed and implemented at a national level, and yearly reporting against progress towards implementation at the international level. (2) Number of countries actively participating in a twinning framework, with countries agreeing to assist other countries in developing and implementing comprehensive activities to combat antimicrobial resistance, including use of support provided by international bodies to improve the monitoring of antimicrobial usage and resistance in humans and animals.

Eritrea level of capabilities

Eritrea has national laboratory capacity for antimicrobial resistance detection (human and animal health sectors) of pathogens recommended by WHO in the Global Action Plan on Antimicrobial Resistance. There is testing and reporting of antimicrobial resistant cases from these laboratories, but such testing and reporting does not follow a systematic mechanism. Eritrea is preparing a proposal for conducting a cross-sectional study on antimicrobial resistance in five Eritrean hospitals.

Eritrea has not yet developed a national plan for antimicrobial resistance detection. The national laboratories take part in a proficiency-testing scheme (with external quality assurance) for the human health sector. There is no plan for surveillance of infections caused by antimicrobial resistant pathogens. Eritrea needs to extend the capacity of antimicrobial resistance detection from the national laboratories to zoba and subzonal level laboratories.

Eritrea has a health care associated infection prevention and control programme since 2004 and has achieved progress through the formation of infection prevention and control committees in tertiary hospitals, and through developing guidelines and the national health care waste management policy.

Despite efforts to ensure rational use of antimicrobial drugs through government hospitals and health care facilities only, there is still purchase of antibiotics without prescription for both human and animal health

sectors. The control of the private sector, which represents around 50% of the services, is very limited. Owing to shortage of veterinary supplies, there is a possibility of individual farmers using illegally imported over-the-counter veterinary drugs (antibiotics) with no quality assurance.

Due to challenges in the coordination of relevant stakeholders, awareness of priority pathogens in the community and even among most health professionals in the human and animal health sectors is low. There is a gap in sharing of information regarding antimicrobial resistance detection and surveillance systems.

Recommendations for priority actions

- Develop a national action plan to address antimicrobial resistance. This should align with the Global Action Plan on Antimicrobial Resistance, incorporating actions by all relevant sectors; particularly health, veterinary and agriculture.
- Establish a multisectoral national task force composed of qualified experts from the relevant sectors.
- Strengthen its antimicrobial resistance stewardship programme within animal and human health sectors.
- Develop health care associated infection prevention and control policies, strategies and guidelines within animal and human health sectors.
- Expand antimicrobial resistance laboratory capacity within animal and human health sectors from national level to the zoba level and establish an antimicrobial resistance sentinel surveillance system within animal and human health sectors.

Indicators and scores

P.3.1 Antimicrobial resistance (AMR) detection – Score 1

Strengths/best practices

- While Eritrea has not yet developed a plan for antimicrobial resistance detection, there is capacity for the detection of antimicrobial resistance in both animal and human health sectors.
- The national laboratories for human and animal health sectors have reasonable culture and sensitivity testing capacity for priority antimicrobial resistance pathogens that are included in the Global Plan on Antimicrobial Resistance.
- A proficiency-testing scheme (external quality assurance) is available for national laboratories in the human health sector.

Areas that need strengthening/challenges

- Develop a systematic approach to antimicrobial resistance detection by evolving a plan for implementation and monitoring that is aligned with the Global Plan for Antimicrobial Resistance.
- Identify pathogens to be monitored and the laboratories capable of detecting those pathogens.
- Develop quality assurance for animal health laboratories at all administrative levels.

P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens – Score 1

Strengths/best practices

- Spontaneous and ad hoc testing/reporting, whenever requested, is done at National Health Laboratory (NHL) but not in the context of a surveillance system for infections caused by antimicrobial-resistant pathogens.

Areas that need strengthening/challenges

- Develop a national plan for surveillance of infections caused by priority antimicrobial-resistant pathogens.
- Develop a systematic approach to surveillance of resistance patterns to common pathogens. This could be through routine data collection and designation of sentinel surveillance sites within the animal and human health sectors.
- Extend the capacity of antimicrobial resistance detection to relevant laboratories at the zoba level.

P.3.3 Health care associated infection prevention and control programmes – Score 3

Strengths/best practices

- Implementation of some components of health care associated infection prevention and control programmes in health facilities are in place since 2004.
- Availability of a national health care waste management policy and the formation of infection prevention and control committees at all levels of the health care system.
- Availability of 0.5% Chlorox solution (disinfectant) producing machines in all hospitals and the distribution of personnel protective equipment to majority of the health facilities.

Areas that need strengthening/challenges

- Develop a consolidated national plan for health care associated infection programmes and ensure the functionality of infection prevention committees in all hospitals.
- Additional incinerators for safe disposal of dangerous wastes and personnel protective equipment should be provided to all hospitals.
- A continuous evaluation system is needed for evaluating the measures taken by the country to ensure a safe environment for its health care professionals.

P.3.4 Antimicrobial stewardship activities – Score 2

Strengths/best practices

- National plan for antimicrobial stewardship has been approved.
- Essential drugs list has been updated in 2016 and it serves as a legal tool for prescribing.
- Standard treatment protocols are available and are used to ensure availability and monitor the usage of antimicrobial drugs.
- There is an ongoing process to reclassify antibiotics as prescription-only medicines in the public health sector.
- Availability of standard treatment protocols.

Areas that need strengthening/challenges

- Institute control mechanisms for antimicrobial use in health facilities.
- Monitor veterinary drugs available and accessible for farmers.
- Train health care professionals on rational use of antimicrobials.
- Carry out surveys periodically to evaluate the rational use of antimicrobials and to identify risk factors.

Zoonotic disease

Introduction

Zoonotic diseases are communicable diseases that can spread between animals and humans. These diseases are caused by viruses, bacteria, parasites and fungi carried by animals, insects or inanimate vectors that aid in its transmission. Approximately 75% of recently emerging infectious diseases affecting humans is of animal origin; and 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.

Eritrea level of capabilities

In Eritrea, tuberculosis and brucellosis are zoonotic diseases of considerable public health importance. Brucellosis surveillance conducted in 1999 and 2003 established a prevalence of 13.2% and 2%, respectively while that conducted for tuberculosis in 1993 and 1999 established a prevalence of 18.5% and 10.6%, respectively. Anthrax has also been reported regularly from two regions of the country. Though rabies cases and deaths are rarely reported, animal bites are common in Eritrea necessitating the need to continue surveillance on animal bites and rabies. Dairy farm owners are sensitized on proper cautionary health practices including disposing of or condemning diseased animals, proper cooking of food and pasteurization of milk to minimize the incidence of common zoonotic diseases.

Eritrea conducts surveillance of zoonotic diseases with a main focus on tuberculosis, brucellosis, anthrax, rabies, hydatidosis and cystercerosis. These six zoonotic diseases are most prevalent in densely populated areas of the country mostly due to poor knowledge of the diseases, eating inadequately cooked meat, drinking unpasteurized milk and living in conditions with poor hygiene.

The surveillance for zoonotic diseases in Eritrea is predominantly passive. Zonal veterinary personnel collect and collate data from general surveillance programmes and slaughterhouses and submit to the zoba, which in turn submits the data to the national level as monthly animal health reports. Zoonotic disease emergencies however are immediately reported to the zonal veterinary administration. The zonal administration submits these alerts to the national veterinary administration for further action and coordination of control measures. Zoonotic diseases surveillance has a link to the community. Members of the community report incidences of disease or unusual events in animals to the district veterinary clinics. The veterinary personnel at the clinics respond by visiting the affected community to collect information and specimens for testing at the national laboratory.

For active surveillance, veterinary officers visit farms and collect blood specimens from animals. The specimen is usually submitted to the national laboratory for testing for brucellosis and tuberculosis. During the same period, animals are inoculated and assessed after three days for reaction that may be indicative of tuberculosis disease.

The MoH IDSR unit collects weekly and monthly reports from over 250 health facilities across the country with more than 80% timeliness and 90% completeness. These reports include information on zoonotic diseases detected in humans.

The One Health approach has not been fully embraced in the country. Existing collaboration between animal and human health sectors is only ad hoc and not based on any defined policies and guidelines. There is no structured joint planning, information sharing and response to zoonotic events. However, the

sectors occasionally share information and also jointly respond to some cases of zoonotic diseases.

Eritrea has one reference laboratory for human health and one for animal health. The national animal health laboratory has the capacity to conduct tests for tuberculosis, brucellosis, peste des petit ruminants, anthrax, sheep pox, foot and mouth disease, lumpy skin disease, among others. However, there are no formal arrangements for specimen and information sharing as well as technical support between laboratories.

The animal and human health surveillance systems use a paper-based reporting platform from the subzoba level to the national level.

Recommendations for priority actions

- Develop and disseminate the strategy and guidelines, as well as review the reporting tools for zoonotic disease surveillance that incorporates One Health and strengthens zoonotic diseases surveillance and reporting.
- Build technical and financial capacity for the implementation of the One Health approach at all levels.
- Establish One Health coordination structures, technical working groups, surveillance and laboratory information sharing and mechanisms for a joint response to zoonotic events.

Indicators and scores

P.4.1 Surveillance systems are in place for priority zoonotic diseases/pathogens – Score 3

Strengths/best practices

- A surveillance system is in place to detect and report priority zoonotic diseases of which six (tuberculosis, brucellosis, anthrax, rabies, hydatidosis and cystercerosis) are routinely reportable in both animal and human health sectors.
- Disease reporting is compulsory for all animal and human diseases. Reports are submitted every week/month. The reports are compiled and submitted to the national level with further reporting to regional and international bodies.
- Sero-surveillance is conducted for brucellosis and tuberculosis.
- A regional control plan exists for Rift Valley fever and avian influenza.

Areas that need strengthening/challenges

- The animal health surveillance system is still not well developed. Guidelines for surveillance exist, but reporting rates for subzobas are low at about 45% monthly.
- There is a need to transition to electronic reporting. Human and animal health surveillance systems are entirely paper based which reduces reporting performance, data quality and effectiveness and efficiency of the system. This also makes data management difficult.
- Develop and implement the One Health approach as there are no policies and guidelines to encourage the practice of One Health.
- Develop a mechanism to facilitate sharing of clinical and laboratory information between human and animal health sectors as there are no arrangements in place for information sharing.

P.4.2 Veterinary or animal health workforce – Score 4

Strengths/best practices

- Eritrea has veterinary/animal health workforce at the national and subnational levels.

- The Hamelmalo Agricultural College and Hagaz Agro Technical School train animal health experts at degree and diploma levels. This has assured a steady increase in the workforce at national, regional and district levels.
- The MoH provides modular training to its staff on IDSR based on the revised technical guidelines that incorporate zoonotic diseases.
- Animal health clinics exist in all the subzones of the country.

Areas that need strengthening/challenges

- Despite the availability of colleges that train animal health experts at degree and diploma levels, there is still a need to organize medium-term training programmes and on-the-job training of middle-level technicians to fulfil the workforce at national and regional levels, and sustain their technical capacity.
- Livestock census has not been conducted since 1997. A better estimate of livestock census is very important in designing disease control plans including workforce development to meet existing needs.

P.4.3 Mechanisms for responding to infectious zoonoses and potential zoonoses are established and functional – Score 2

Strengths/best practices

- Human and animal health experts located at the MoH and MoA, respectively, respond to zoonotic disease events separately.
- Separate strategies or plans exist in human health, animal health and wildlife sectors for response to zoonotic events.

Areas that need strengthening/challenges

- There is no joint strategy or plan among animal health, human health and wildlife sectors.
- Develop a policy and mechanism for establishing multidisciplinary interagency teams that includes both human health and animal health experts to respond to zoonotic disease events.

Food safety

Introduction

Food- and water-borne 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.

Target

States 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.

Eritrea level of capabilities

Eritrea has strong political commitment to promote food safety with emphasis on a multisectoral approach. There are ongoing initiatives to bring together authorities responsible for food and water safety (ministries of health, agriculture, marine resources, trade and industry, local government, water, land and environment and the Eritrean Standards Institution (ESI)). Food inspectors are employed to conduct inspection, approval and the implementation of food standards.

The MoA has established collaboration with the International Food Safety Authority Network (INFOSAN). Eritrea has a focal person on food safety at the MoA, MoH and Association of Eritrean Health Laboratory. The country has experience in managing food safety incidents, but lacks systematic documentation of good practices, lessons learned and information on whether the necessary improvement is being made post-incident. A food safety plan and standards are present but the extent of implementation including the review of performance is not yet systematic. Eritrea has the capacity to detect typical food contamination but lacks competence in foodborne disease surveillance, especially among the different administrative tiers. No database is available to document foodborne events, which could indicate underreporting. Financial and logistic challenges are also major limiting factors to ensuring robust approaches to food safety.

Recommendations for priority actions

- Develop a multisectorial food safety strategy with a specific action plan in the absence of a unifying food safety act. This should involve inputs and participation of all relevant stakeholders, including the private sector, at all administrative levels to ensure more effective adoption of a One Health approach.
- Develop and operationalize an integrated structured foodborne disease surveillance system among all relevant stakeholders/functions (food, water, sanitation, trade, public health, port/customs, agriculture).
- Build capacity for epidemiology and laboratory skills in foodborne disease surveillance, detection and response, including sufficient funding.
- Strengthen routine monitoring and evaluation to enhance food safety and quality control.

Indicators and scores

P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination – Score 2

JEE acknowledges the capacity available in surveillance, detection and response to food safety within the country but the arrangement is reactive and limited in terms of effective operational linkages between and within the relevant sectors.

Strengths/best practices

- Focal points are identified in relevant stakeholders and sectors (food safety, human health, surveillance and response staff, animal health, key laboratories).
- Political and technical awareness to safeguard food safety and water quality among all relevant stakeholders. Mapping of stakeholders involved in and related to the food safety undertaken.
- ESI based on Codex or ISO standards.
- NHL has the capacity to test microbial hazards, toxic chemicals and analyse water. Additional facilities are available within the MoA, Ministry of Marine Resources and Ministry of Trade and Industry, Ministry of Land, Water and Environment.
- ESI participates in food inspection and regulation programmes.

Areas that need strengthening/challenges

- Develop an overarching food safety strategy and action plan.
- Strengthen monitoring and evaluation to enhance food safety and quality control which should include all points of entries – both imports and exports of food commodities.
- Provision and strengthen functional laboratory facilities at all levels including capacities of laboratory personnel.
- Enhance good coordination and collaboration at the technical level for rapid multisectoral and operational response to detect and respond to food safety and foodborne outbreaks.
- Strengthen sharing of information with different laboratories for effective surveillance and response. Increase cross-sectoral awareness of food safety among the general public.
- Conduct risk mapping of foodborne diseases and outbreaks within the country.

Biosafety and biosecurity

Introduction

It is vital to work with pathogens in the laboratory to ensure that the global community possesses 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 diseases 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.

Eritrea level of capabilities

Authorities in Eritrea acknowledge the importance of biosafety and biosecurity to safeguard public health and safety of laboratory workers. Laboratories are also aware of events and hazards, which could lead to an accidental infection or unauthorized access, loss, theft, misuse, diversion or intentional release of dangerous pathogens.

The NHL and the National Agricultural and Plan Health Laboratory (NAPHL) offer basic biosafety and biosecurity training to laboratory personnel with their own experts as part of quality management systems and safe working environment.

There is no formal policy/regulation related to biosafety and biosecurity in place yet. Site visits to health care and laboratory facilities indicate basic and limited implementation of biosafety procedures and guidelines. There is no system in place to share data and experiences on biosafety and biosecurity between human and animal health sectors. However, some elements of a comprehensive biosafety and biosecurity system are ongoing, such as:

- Starting the process to monitor and develop an updated record and inventory of pathogens within facilities that store or process dangerous pathogens and toxins.
- Developing a comprehensive national biosafety and biosecurity legislation.
- Developing laboratory licensing.
- Developing pathogen control measures, including standards for physical containment and operational handling and failure reporting systems.
- Not consolidating dangerous pathogens and toxins into a minimum number of facilities.
- Not employing diagnostics that preclude culturing dangerous pathogens.
- Not implementing oversight monitoring and enforcement mechanisms.

Eritrea 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. There is a general lack of awareness among the laboratory workforce of international biosafety and biosecurity best practices for safe, secure and responsible conduct. The 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

- Biosafety and biosecurity legislation should be developed to cover all laboratory and health care sectors dealing with dangerous pathogens.
- A multisectoral collaboration mechanism should be formalized and implemented and a multisectoral strategy and policy should be developed to ensure optimum biosafety and biosecurity of human, animal and agriculture facilities.
- Biosafety and biosecurity trainings should be strengthened and best practices should be integrated in all relevant sectors.
- Dangerous pathogens that may pose public health concerns should be identified, listed, risk profiled and adequate control measures should be taken.

Indicators and scores

P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities – Score 2

Strengths/best practices

- Laboratories are applying biosafety manuals, SOPs, and Good Laboratory Practice guidelines developed internally.
- Waste disposal system is well developed with affordable options (e.g. incinerators, autoclave and assessment of treated waste).

Areas that need strengthening/challenges

- Biosafety and biosecurity legislations need to be formulated and implemented. This needs to cover all the existing gaps, including aspects of physical security and inventory control of dangerous pathogens.
- Biological risk assessment of the current situation for biosafety and biosecurity should be conducted and any potential risk should be proactively mitigated.
- There is lack of coordination and information sharing among the different ministries that take part in biosafety and biosecurity of human, animal and agriculture facilities.
- A baseline assessment of the current state of affairs for biosecurity should be mapped out including sample storage, available documents and guidance.

P.6.2 Biosafety and biosecurity training and practices – Score 2

Strengths/best practices

- The NHL has prepared safety manual and Good Laboratory Practice guidelines.
- Basic biosafety and biosecurity training is given at NHL as part of the Quality Management System protocol, but not on a regular basis.

Areas that need strengthening/challenges

- Biosafety and biosecurity trainings carried out so far are not adequate or optimized and thus should be strengthened.
- Laboratories need to be strengthened with improved guidance, SOPs, reagents, equipment and personnel, including biosafety and biosecurity trainings.
- Facilities for dangerous pathogens and toxins need to be identified and established.

Immunization

Introduction

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

Target

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

Eritrea level of capabilities

Eritrea launched its immunization services in 1980 with the introduction of the six traditional vaccines for Bacillus Calmette-Guérin (BCG), polio, diphtheria, tetanus, pertussis and measles. From 2002, additional vaccines were introduced, such as Hep-B (2002), Haemophilus influenza type B (2008), measles second dose (2012), rotavirus vaccine (2014) and pneumococcal conjugated vaccines (PCV-13) (2015). Vitamin A supplementation is done every six months. The country has a mechanism for tracing vaccine defaulters during the Africa vaccination week and child health and nutrition week. Inactivated polio vaccine (IPV) introduction has been delayed due to global shortage of the vaccine. In Eritrea, vaccination for children and women of child-bearing age are available for free upon request. Vaccination is voluntary.

Yellow fever vaccination is given to travellers visiting yellow fever endemic areas. A risk assessment for meningococcal disease has been done in collaboration with GAVI and other partners, and a campaign is planned for the first quarter of 2017.

The EPI unit is a part of the MoH organizational structure. The MoH is responsible for policy standards, priority setting as well as capacity building, and links with other stakeholders and donor partners for resource mobilization. Below the national level is the zoba level where the EPI falls under the Family and Community Health Division. EPI service delivery is integrated with other maternal and child health services and delivered as a package in all health facilities in static and outreach sites. The country immunization work plan is based on six strategic objectives of the Global Vaccine Action Plan (GVAP) and its guidelines. Eritrea's comprehensive multi-year plan spanning 2012 to 2016, sets out actions necessary to strengthen EPI service provision at national, zonal, subzonal and operational levels.

Of the 347 health facilities in the country, 85% (295) provide routine immunization services. There are 450 outreach sites with one visit per site every two to three months to improve access to and utilization of immunization services. Eritrea uses a system called Periodic Intensified Routine Immunization (PIRI) to provide services in hard-to-reach areas and among nomadic population groups. The process involves taking immunization services to the most remote areas of the country with the support of GAVI, United Nations International Children's Fund (UNICEF), WHO and other partners. There is active participation of the community in PIRI – they provide animals (horses and camels) for transportation to the hard-to-reach areas. In response to the outbreak of wild poliovirus in the Horn of Africa, Eritrea conducted national immunization days in 2013 and 2015. The first measles supplemental immunization activity was in 2003, and since then catch-up campaigns have been conducted every two to three years.

Based on the latest coverage survey (2013), the national coverage for measles containing vaccine 1st dose (MCV1) is >90% and is projected to be >95% in 2016. Nearly, 80% of all subnational (districts/provinces) units are covered and Eritrea has maintained this coverage level for at least five years. In recognition of

attaining high immunization coverage, Eritrea received an award from GAVI.

Eritrea has a nationwide vaccine delivery system (maintaining cold chain) in most zobas. A functional procurement system for vaccines exists, through UNICEF from WHO prequalified vaccine institutes. Eritrea has storage capacity for vaccines for routine immunization and supplementary immunization activities (SIAs). For its vaccine management through the Stock Management Tool (SMT) the country received an award from WHO and UNICEF.

Vaccine delivery (maintaining cold chain) is available in 60-79% of districts, and 60-79% of the target population in the country. Functional vaccine procurement and forecasting ensure that there are no stock-outs at the central level and rare stock outs at the district level.

Despite the above achievements, a possible challenge in the system is the low level of regular supervisory visits. The national team attributed this to lack of transportation. Supportive supervision is key to maintaining quality of services at the point of contact with clients for immunization services, considering the high turnover of staff in Eritrea.

Recommendations for priority actions

- Strengthen PIRI in less accessible areas and nomadic population groups.
- Improve the quality of vaccine management, vaccine administration and data quality audits through training and supportive supervision.
- Improve EPI waste disposal procedure as per the WHO recommended guidelines by installation of more incinerators.
- Strengthen investigation and appropriate reporting system of adverse event following immunization (AEFI).
- Commit to the procurement of solar direct drive (SDD) refrigerators to close electric supply gaps and ensure sustainability.

Indicators and scores

P.7.1 Vaccine coverage (measles) as part of national programme – Score 5

Strengths/best practices

- Though Eritrea has a relatively small number of partners involved in immunization, there is very effective coordination among the MoH, UNICEF, WHO and other partners
- Eritrea has an effective strategy for taking immunization services to its hard-to-reach geographical areas and mobile populations. This include mapping of less accessible areas and using camels and horses/donkeys as transportation for outreach services.
- There is extensive community participation in EPI planning designed to reach every child especially in the hard-to-reach areas.

Areas that need strengthening/challenges

- Need for implementation of data quality self-assessment (DQS) tool to use data for action at service level reach in hard-to-reach areas.
- Supportive supervision.
- Shortage of incinerators is leading to use of pit holes and burning of sharps to dispose of used needles.

P.7.2 National vaccine access and delivery – Score 4

Strengths/best practices

- Availability of SMT to monitor stock levels of all vaccines
- Cold chain inventory done to determine Performance, Quality and Safety (PQS) cold chain equipment and plan the replacement for standard refrigerators.
- Availability of adequate storage capacity for vaccines for routine immunizations and SIAs.
- All vaccines are procured through UNICEF from WHO prequalified vaccine institutes.
- Stock out of vaccines has not been observed at any level for the past three years.

Areas that need strengthening/challenges

- Improving the quality of vaccine management, vaccine administration and DQS through training and supportive supervision.
- Procurement of SDD refrigerators to close electric supply gaps.

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

Eritrea level of capabilities

Eritrea has a functional human, animal and plant health laboratory system. There is also a functional public health laboratory network system that is inter-linked for confirmation of priority diseases, conditions and events. Medical laboratory services in Eritrea are an integral part of health care provision. All medical laboratories, except NHL (which is the national reference laboratory), are attached to health facilities at the different levels of care. The range of services offered by the laboratories depends on the level of health service. The laboratory network follows a pyramidal structure supervised technically by the NHL. At the lowest level are laboratories within health centres. These together with laboratories at subzoba level mainly conduct basic tests for clinical purposes. Each zoba has a zonal reference laboratory that conducts more advanced tests and also provides technical support and supervision to lower level laboratories.

The NHL has laboratory services in microbiology, serology, haematology, tuberculosis and food quality control. The NHL conducts confirmatory tests for six of the 10 priority diseases. There is capacity for culture and sensitivity testing for a number of pathogens, including Escherichia coli, citrobactor, proteus, pseudomonas, salmonella, Shigella, Mycobacterium tuberculosis and Klebsiella. For diseases like yellow fever, polio and Ebola, the laboratory sends specimens to Kenya, South Africa and Uganda for confirmatory testing. The NHL participates in External Quality Assessment (EQA) schemes and also conducts EQAs for tuberculosis and malaria for the six zoba laboratories, which in turn do EQAs for peripheral laboratories.

The NHL has a food safety section which conducts physicochemical and microbiological tests on food samples submitted by public health officers at points of entry as well as quarantine and inspection officers. The national laboratory system is capable of conducting five or more of the ten core tests. The NHL has biosafety manuals. There are however no formal policies or arrangements for specimen sharing, technical support and information sharing with other sectors, such as agriculture, or marine.

Under the MoA there are five zonal laboratories that conduct basic laboratory activities including parasite examination and direct microscopy. Samples sent to these laboratories are collected from farms and veterinary clinics. The National Animal and Plant Health Laboratory (NAPHL) within the MoA is the animal and plant health reference laboratory located in Asmara. It has reasonable capacity to perform conventional animal and plant diseases diagnostic services as well as food/feed safety and quality analysis. The NAPHL has bacteriology, virology, serology, molecular biology (polymerase chain reaction (PCR)), parasitology and

pathology sections. The NAPHL conducts tests for rabies, brucellosis, bovine tuberculosis, Rift Valley fever, peste des petits ruminants, anthrax, foot and mouth disease and contagious bovine pleuro-pneumonia. The NAPHL also conducts brucellosis testing on human specimens. The food quality section conducts tests on animal products from processing plants and imported food and feed for quality assurance. The NAPHL has a plan to produce veterinary vaccines against some of the most prioritized endemic animal diseases, but has no formal policy in place yet. The NAPHL is equipped with working, technical, general and testing SOPs.

There exists an organized specimen transport system to transport specimens to national laboratories from 50- 80% of intermediate level/districts within the country for advanced diagnostics. The laboratory system however does not have a unitary database. Each section maintains its paper-based database in registers and reports to the MoA independently.

Tier-specific diagnostic testing strategies are documented, but not fully implemented. Eritrea is proficient in classical diagnostic techniques including bacteriology, serology and PCR in select laboratories, but has limited referral and confirmatory processes. Eritrea is using point-of-care diagnostics for country priority diseases, and at least one other priority disease. National quality standards have been developed but there is no system for verifying their implementation.

Recommendations for priority actions

- Develop a public health laboratory policy and strategic plan.
- Establish a laboratory quality management and assurance system including targets for certification, accreditation and quality assurance.
- Establish policies and guidelines for formal linkages between the animal and human laboratories, including provisions for specimen sharing, information exchange and technical support.
- Build technical human resources for laboratory services through formal and refresher training programmes.

Indicators and scores

D.1.1 Laboratory testing for detection of priority diseases – Score 4

Strengths/best practices

- The NHL is capable of confirmatory testing of priority diseases as identified by the WHO such as: human immunodeficiency virus (HIV), tuberculosis, plasmodium and salmonella. The laboratory can also tests for causes of other local public health problems such as measles, Staphylococcus aureus, E. coli and Neisseria meningitis.
- EQA exists for three core tests: malaria, tuberculosis and HIV.
- At the NHL the measles laboratory and the tuberculosis laboratory are under the Stepwise Laboratory Improvement Process Towards Accreditation (SLIPTA) for ISO 15189.
- The NHL conducts quality assurance for the national referral hospital laboratories and one of the zonal referral hospital laboratories.
- Laboratory QMS is partially in place.
- SOPs are developed for most of the national laboratory departments.
- There is a designated quality officer.
- Algorithms are in place for HIV and tuberculosis culture.
- The NAPHL is capable of detecting some of the antimicrobial resistant pathogens, including salmonella, shigella, S. aureus, M. tuberculosis and M. bovis.

Areas that need strengthening/challenges

- QMS needs to be strengthened and implemented in all laboratories.
- Sustainable laboratory capacity in districts and regions needs to be strengthened with improved guidance, SOPs, reagents, equipment and personnel.
- Laboratory diagnosis at molecular level for human laboratory should be introduced.
- Some equipment and reagents required to detect priority diseases at NAPHL need to be assessed, fixed and upgraded.
- Laboratory policy and quality standards are not yet developed.

D.1.2 Specimen referral and transport system – Score 3

Strengths/best practices

- Arrangements exist for laboratory specimen referral between the lower laboratories and the NHL for both animal and human health systems.
- Specimen transportation mechanism exists through courier contracts supported by the MoH. The MoA has organized vehicles to transport specimens from the zoba clinics as well as five zonal veterinary laboratories to the NAPHL.
- Laboratory SOPs are available for the specimen referral network under the laboratory component of IDSR.
- Both the NHL and NAPHL are capable of sending specimens out of the country for tests whose capacity is still not developed. There is a WHO certified technician at the NHL who is responsible for sending specimen shipments abroad.
- Basic specimen collection and transport training is part of the QMS.

Areas that need strengthening/challenges

- Technical staff in both the sectors require training on specimen collection, packaging and transport.
- There is a need to develop SOPs at the NHL for tests, procedures and protocols to ensure uniformity in practice. All levels also require SOPs and guidelines for specimen referral.
- Laboratory systems need to develop mechanisms for specimen, data and information sharing between animal and human health laboratories. The laboratories need to also explore areas of synergy including technical assistance.

D.1.3 Effective modern point of care and laboratory based diagnostics – Score 3

Strengths/best practices

- Point-of-care diagnostics are available for country priority diseases such as HIV. Mostly rapid diagnostic tests are used. PIMA machines are used to test for CD4 levels.
- All health facilities are linked to next level health facility in the tier system.
- A tier-specific diagnostic testing strategy exists. At each level, capacity is established for conducting tests that address the most prevalent public health problems.

Areas that need strengthening/challenges

- There is a need to further improve the use of point-of-care diagnostics in both human and agriculture sectors to provide ready laboratory solutions for prevailing clinical needs, and to address priority diseases.

D.1.4 Laboratory quality system – Score 2

Strengths/best practices

- QMS is partially in place and a quality management department has been established.
- The NHL sends samples to regional laboratories for proficiency testing for tuberculosis on a regular basis.
- The NHL, two national referral hospital laboratories and one zonal hospital laboratory are participating in EQA schemes with South Africa.
- The tuberculosis laboratory is undergoing ISO 15189 accreditation process.

Areas that need strengthening/challenges

- The quality management department has limited technical personnel and resources.
- The national QMS should be strengthened by participation in EQA programmes in all areas of laboratory tests.
- There is a need to develop and implement national laboratory quality and management standards.
- The NHL should commence preparations for adopting ISO 15189 certification.
- Regional laboratories need to be assessed and strengthened.
- All regional laboratories should be enrolled in an EQA scheme with the NHL.

Real-time surveillance

Introduction

The purpose of realtime surveillance is to advance the safety, security and resilience of the nation by leading an integrated biosurveillance 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 (local and intermediate), national and international levels of authority regarding surveillance of events of public health significance; improved country and intermediate level/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.

Eritrea level of capabilities

The country adopted the IDSR strategy in 2000 and immediately established a surveillance unit in the MoH. Eritrea conducts indicator-based surveillance for 19 priority diseases, conditions and events. Eritrea adopted the second edition of WHO AFRO's IDSR technical guidelines of 2012 that incorporated event-based and community-based surveillance and emphasized the implementation of IHR within IDSR. The technical guidelines along with standard case definitions for both community and health facility levels were produced and disseminated to all the subzones and health facilities (hospitals, health centres and health stations).

To build technical capacity for IDSR, the IDSR unit has been conducting modular type training of health workers at all levels with a purpose to have all public health staff trained in disease surveillance at national, zoba and subzoba levels. Clinical staff are also targeted in order to improve detection and reporting of priority diseases, conditions and events.

Syndromic surveillance is being done within the IDSR. Weekly IDSR reporting is mostly syndromic in nature so as to provide early warning for outbreak detection even before laboratory confirmation. This includes surveillance for the five syndromes to which internationally recognized standards for syndromic surveillance are available, i.e. severe acute respiratory syndrome (SARS), acute flaccid paralysis (AFP), acute haemorrhagic fever, acute watery diarrhoea (AWD) with dehydration, and jaundice with fever.

Event- and community-based surveillance have also been implemented. Events detected through official as well as unofficial channels are logged at the detection level and investigated. Community volunteers document and report events to their nearest health facility immediately and weekly. Such events are reported through the IDSR system alongside indicator-based data to the MoH surveillance unit.

The IDSR data reporting system is paper based. However, some health facilities located in remote areas use radio while at the zoba level some use e-mails to report weekly and monthly data. Health facilities report to their respective subzobas immediately for notifiable diseases. Aggregated data for reportable events is also reported weekly and monthly to the MoH surveillance unit. Zobas collate data from their

subzobas and create an electronic database that is reported to the MoH surveillance unit by way of flash discs. The national surveillance programme collates all national data in an electronic platform. The weekly and monthly timeliness and completeness of reporting for most health facilities exceeds 90%. Data is not routinely shared with stakeholders including the MoA.

In order to improve real time surveillance, the MoH is in the process of testing and establishing a DHIS-II web based reporting platform and database. Moreover, the communicable diseases control division has also conducted feasibility assessment for the introduction of an SMS based reporting system.

The public health staff at the regional and subzonal levels have been trained in data management so as to build skills to analyse surveillance data, detect outbreaks and disseminate findings. Data analysis is therefore ongoing at all levels including at health facilities, with more advanced analysis at higher levels in the system.

The animal health sector also conducts surveillance for zoonotic diseases and community based surveillance for zoonotic diseases is ongoing. The community reports to subzoba veterinary officers. The subzoba technical staff also collect information from farms and slaughter houses and submit this to the zoba level every month for onward transmission to the national level MoA.

There is no formal collaboration and information sharing between the human and animal health systems though the teams occasionally share information on ad hoc basis at both national and subnational levels.

Recommendations for priority actions

- Develop and disseminate an IDSR electronic reporting system with an electronic database.
- Conduct regular monitoring and evaluation of IDSR performance with periodic IDSR indicator review.
- Expand and reinforce community-based surveillance in all villages and health facilities and strengthen event-based surveillance with rumour logging and monitoring and evaluation of performance.
- Where feasible, establish/strengthen cross-border surveillance with cross-border collaboration with neighbouring jurisdictions.
- Establish IDSR information sharing including regular and timely weekly epidemiological bulletins.

Indicators and scores

D.2.1 Indicator and event based surveillance systems – Score 3

Strengths/best practices

- Revised IDSR technical guidelines that follow the revision by WHO AFRO in 2010.
- Community and health facility standard case definitions for priority diseases, conditions and events are available.
- A strong indicator-based surveillance system with 36 priority diseases, conditions and events is in place.
- Sentinel surveillance for vaccine preventable diseases, such as rotavirus and paediatric bacterial meningitis is conducted.
- Logbooks for registering any unusual events are available at all health facilities; event-based surveillance is conducted.
- Training of technical personnel on IDSR is conducted biannually.
- National reporting rates and timeliness for health facilities is above 90% all the time.

- Surveillance officers at national and regional levels have undergone a four-month course in basic applied epidemiology.
- Surveillance meetings are held regularly at national level and in the zones to review IDSR performance.
- Supportive supervision from zones to health facilities is conducted regularly to improve IDSR functioning and data quality and use.

Areas that need strengthening/challenges

- Introduce and institutionalize surveillance-related training in the pre-service curriculum in institutions of health personnel training.
- Commence IDSR functions in major health facilities including the national referral hospital.
- Enhance strong linkages with animal health surveillance including data and information sharing between human and animal health sectors at all levels.
- Develop a policy and framework for cross-border surveillance and response including cross-border collaboration for planning and joint response.
- Strengthen event- and community-based surveillance.

D.2.2 Interoperable, interconnected, electronic real-time reporting system – Score 2

Strengths/best practices

- An electronic excel-based database is available at zonal and national levels. The zobas report to the national level IDSR data in excel format using flash discs. The national level collates these reports into one excel based database.
- The MoH is in the process of developing, testing and establishing a web-based data reporting system based on DHIS-II.
- A feasibility study on using SMS for surveillance reporting was conducted in 2016. Findings will be used to inform development on reporting.

Areas that need strengthening/challenges

- Developing an electronic web-based IDSR reporting platform with an electronic database.
- Integrating the IDSR reporting platform and database with possibility of interoperability for efficiency and sustainability.

D.2.3 Analysis of surveillance data – Score 4

Strengths/best practices

- The country has good capacity to analyse surveillance data at national and zoba levels. Surveillance focal persons at zonal and national levels have been trained in data analysis.
- Surveillance data are routinely analysed at national and zoba levels at immediate, weekly and monthly reporting times.
- Health facilities conduct basic data analysis mainly to establish the magnitude of morbidity and mortality and to ascertain trends over time.
- Computers are used to analyse surveillance data at national, zoba and most subzoba levels.

- Supportive supervision from zones to health facilities is conducted regularly to improve IDSR functioning and data quality and use.

Areas that need strengthening/challenges

- Although data are analysed regularly, the findings are not shared.
- Data analysis is also ongoing in the animal health sector but there is no exchange of information with the human health sector. It is desirable to establish a mechanism of data and information sharing between the two sectors.
- Expand mobile SMS technology for reporting of priority diseases that are in pilot phase to all subzobas.
- Restart and sustain production of the weekly epidemiological bulletin as a platform for sharing IDSR information and providing feedback to lower levels.
- Strengthen the use of information technology for IDSR.
- Improve Internet availability and use by all levels.

D.2.4 Syndromic surveillance systems – Score 4

Strengths/best practices

- Syndromic surveillance has been implemented at all levels in the country. Weekly IDSR reporting is mostly syndromic so as to provide early warning for outbreak detection even before laboratory confirmation.
- Specifically, syndromic surveillance is conducted for diseases, conditions and events that include SARS, AFP, acute haemorrhagic fever, AWD with dehydration, and jaundice with fever.
- Case-based information is collected from suspected cases and specimens submitted to the NHL for confirmation.
- Trends in reported syndromes are periodically analysed to determine unusual patterns that may be indicative of outbreaks.

Areas that need strengthening/challenges

- Improve and sustain reporting rates.
- Strengthen laboratory support to syndromic surveillance with timely release of results.
- Analyse data routinely and share findings from syndromic surveillance as an early warning system.
- Monitor and evaluate performance of the syndromic surveillance system periodically.

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.

Eritrea level of capabilities

The country has a national IHR focal point and operational OIE contact points and World Animal Health Information System (WAHIS) national focal points.

The national IHR focal point is in the National Inspection and Quarantine in the MoH and is operational. The national IHR focal point is trained in offline and online versions of ship inspection and sanitation, the IHR decision instrument, case scenarios, notifications and notification assessment. However, the national IHR focal point has not undergone any WHO specific training. Food safety issues are at present not reported through the national IHR focal point, but through the relevant food safety focal points.

The operational OIE contact point is the Chief Veterinary Officer in the MoA. The OIE also has a focal point on food safety domiciled in the Department of Extension under the MoA. The OIE contact person routinely reports to OIE-WAHIS within existing protocols.

The IDSR technical guidelines provide guidance on IDSR functions for each level. The guidelines also provide help on timelines of reporting for each category of diseases, conditions and events. Reporting sequence is from the community to health facilities to subzobas, to zobas and finally to the surveillance programme at the national level at MoH. Points of entry also report to zobas that in turn report to the surveillance programme at the national level at MoH.

Eritrea is in the process of developing and establishing protocols, processes, regulations, and/or legislation governing reporting to start implementation within a year. There exists ad hoc contact between the national IHR focal point and OIE focal points through telephone. However, this communication is not structured. Once events meet the criteria for notification to WHO as public health emergency of international concern (PHEIC), the MoH leadership at the ministerial levels is first informed. Then the national IHR focal point is informed for onward official reporting to WHO. Even though Eritrea has not had the system tested through a real event, a polio simulation exercise conducted earlier served to test the system. It was noted that the reporting process to the national IHR focal point and WHO was not executed as expected even though procedures exist within the IDSR and IHR guidelines. It is noteworthy that there are no restrictions to national IHR focal point reporting in the country.

Recommendations for priority actions

- Develop the system (in line with IHR and IDSR guidelines) to allow timely and accurate disease reporting to OIE and WHO, and also enable information sharing between the national IHR focal point and OIE contact person.

- Build capacity among human and animal health personnel for assessing potential PHEICs and necessary reporting. This should include training of human resources.
- Test the system for reporting PHEICs to WHO and OIE through real-life events or through simulation exercises.

Indicators and scores

D.3.1 System for efficient reporting to WHO, FAO and OIE – Score 2

Strengths/best practices

- A national IHR focal point and an OIE contact person have been identified for reporting to WHO and OIE respectively.
- The national IHR focal point has been trained on a minimum set of competencies required for execution of roles and responsibilities of reporting to WHO.
- Training of personnel in the public health sector on IHR has been conducted at the national level, points of entry and zonal levels.
- Reporting from points of entry has been linked to the bigger surveillance reporting system, ensuring events at points of entry are captured by the surveillance system.

Areas that need strengthening/challenges

- Strengthen linkages between the human and animal health national focal persons so as to ensure information exchange between the national IHR focal point and the OIE contact person.
- Establish mechanisms for reporting food safety events to WHO through the national IHR focal point and to OIE.
- Establish clarity of reporting from both the human and animal health sectors to ensure that technical personnel know how to assess events and when to report in line with the country's reporting mechanism.
- Train the national IHR focal point and OIE contact person on the respective global agency's reporting functions and expectations.
- It is not clear which ministries/sectors the national IHR focal point represents. There is a need to review the national IHR focal point and persons representing stakeholder ministries/sectors and also sensitize responsible people on the ministries/sectors represented.

D.3.2 Reporting network and protocols in country – Score 2

Strengths/best practices

- During the EVD outbreak in West Africa, a national multidisciplinary task force chaired by the Ag. Director General of Public Health was established with clear terms of reference for coordination of PHEIC.
- At points of entry computerized thermal scanners and hand held non-contact thermo-scanners were put in place for screening of travellers at airports and ground crossing points.
- The system was tested several times during the EVD outbreak in West Africa. This included alerts of two travelling health workers who had been deployed in the EVD response in West Africa.
- A polio simulation exercise was conducted in early 2016 to test the performance of various response functions including reporting.

Areas that need strengthening/challenges

- There are no protocols/guidelines for reporting to the WHO. There is a need for defined protocols for communication and linkages across the entire health care system, the surveillance programme and the national IHR focal point to ensure prompt reporting of detected events that meet the threshold for reporting to WHO.
- The polio simulation established that Eritrea's system of reporting to WHO is not well functioning as reporting gaps were noted within the simulation exercise.

Workforce development

Introduction

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

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.

Eritrea level of capabilities

There is strong political commitment in ensuring that the country attains the required number of skilled public health workforce. According to a 2015 estimate, there are 8,821 health professionals (clinicians, nurses, public health officials), of which 4% are public health professionals. The number of public health workers increased from 97 in 2011 to 216 in 2015. The MoH is developing a 2016–2021 Public Health Workforce Strategy following the expiry of the last one in 2015. The Strategy is normally reviewed annually and has well-defined incentive mechanisms for health workers who are to be deployed in suburban locations which includes provision of hardship salaries, scholarships and housing. There is also a transfer policy whereby health workers will stay in a particular area for a certain period and later be shifted to another area. Eritrea has financial mechanisms in place to ensure funding for graduate positions in public health and other medical professions.

There is also an adequate animal health workforce at the national and zoba levels. Animal health clinics exist in all the subzones of the country. The ACHS, the Orotta School of Medicine and the three associate nurse schools in the three zobas train the human health workforce. The Hamelmallo Agricultural College and Hagaz Agro Technical School train animal health experts at degree and diploma levels. There are various partners who support workforce development, including the WHO-supporting short courses on epidemiology, entomology and surveillance. WHO also gives technical support for HRH planning and development, HRH strategic plan reviews, research in human resources development and planning for the country priority research agenda. The Global Fund provides aid for human resource development in distance learning and fellowship training for health workers, and for in-service training. The Global Fund also provides technical assistance in HRH career development and strategic planning. GAVI provides assistance for zonal associate nurse schools and capacity building of health professionals. OIE supports training of laboratory staff and also consultancy on veterinary curriculum development. There is also an animal workforce programme.

Eritrea has multidisciplinary human resources capacity (epidemiologists, veterinarians, clinicians and laboratory specialists or technicians) at the national level. There are some professionals with limited epidemiological capacity who received short-course training abroad, in neighbouring countries like Kenya. These professionals are available at national and zoba levels. There is a four-month applied epidemiology short-course training programme. Earlier, staff participated in a training programme (basic and intermediate levels) hosted in another country through an existing agreement. The intermediate level trained staff have

some capacity in epidemiology, case management and laboratory skills. Public health professionals and senior laboratory clinicians with basic epidemiology are trained by ACHS. There is surveillance reporting that ensures regular communication among public health professionals in epidemiology, case management and laboratory from local administrative areas to subzonal, from subzonal to zonal MoH and then MoH headquarters.

Recommendations for priority actions

- Develop and implement a comprehensive workforce strategy as a key component to sustain best practices of public health services for health security. A workforce gap assessment underpinning the One Health approach should be conducted to inform the development of the strategy.
- Increase the pool of epidemiologists with surveillance skills in all hazards at the subnational level.
- Expand the current four-month epidemiology course to include laboratory and veterinary cadres to complement the existing basic epidemiology programme that is being conducted at ACHS.

Indicators and scores

D.4.1 Human resources are available to implement IHR core capacity requirements – Score 3

Strengths/best practices

- Strong political commitment from the Government of Eritrea and MoH.
- Financial mechanisms are in place to ensure funding for graduate positions in public health and other medical professions.
- A multidisciplinary human resources capacity (epidemiologists, veterinarians, clinicians and laboratory specialists or technicians) at the national and intermediate levels.
- A communication mechanism and a surveillance reporting system (daily and weekly reporting system) that ensures regular communication among Eritrean public health professionals with epidemiology background from local administrative areas to subzonal levels; from subzonal level to zonal MoH; and from zonal MoH to MoH headquarters.
- Adequate animal health workforce at the national and zoba levels.
- Animal health clinics in all the subzones of the country.
- ACHS provides training for health workers (clinicians, laboratory scientists/technician) and conducts a four-month course in epidemiology.
- Hamelmalo Agricultural College and Hagaz Agro Technical School have long-term degree programmes and advanced diplomas in veterinary sciences.

Areas that need strengthening/challenges

- Adequate numbers of epidemiologists or public health officers are required at all administrative levels. This necessitates the expansion of epidemiology training at ACHS and Hamelmalo Agricultural College with more regular intakes and adequate resources to support the programme.
- Hamelmalo Agricultural College has to include middle-level epidemiology training courses aiming to gradually increase veterinary capacity in epidemiology.
- Expand the current four-month epidemiology course to include a laboratory track and veterinary cadres.
- The career development path for graduates should be better defined.
- Map the existing public health workforce including those trained in Kenya and ACHS so as to be able to utilize them as mentors for other students.

D.4.2 Field epidemiology training programme or other applied epidemiology training programme in place – Score 3

Strengths/best practices

- A long running degree programme in public health and a four-month applied field epidemiology training programme are in place at the ACHS. Additionally, a basic epidemiology training programme is included in the Bachelor of Science (BSc.) course in Public Health which is focused on infectious disease field work and other subspecializations.
- A six-week short course in epidemiology is organized by the MoH and WHO.
- Some staff have participated in a basic/intermediate course in field epidemiology training programme hosted in Kenya through an existing agreement and some participated in online training.
- Some veterinarians participate in epidemiology training courses organized outside the country.
- Hamelmalo Agricultural College has a long running degree programme and advanced diploma in veterinary sciences.

Areas that need strengthening/ challenges

- The applied epidemiology training programme of ACHS and Hamelmalo Agricultural College has to be strengthened to ensure more intakes and adequate finances.
- Establish a standard field epidemiology training programme to increase the number of skilled public epidemiologists. The training programme can utilize the graduates of the Kenya programme, ACHS or those who have graduated through distance learning as mentors and teachers.
- The Hamelmalo Agricultural College's degree programme needs to extend its curriculum to six years to train veterinarians to reach the Doctor of Veterinary Medicine level (as recommended by the OIE consultants).
- Map existing public health workforce and animal workforce to enable preparation of a comprehensive workforce strategy.

D.4.3 Workforce strategy – Score 4

Strengths/best practices

- A public health workforce strategy has been developed and implemented consistently. The strategy is reviewed, tracked and reported on an annual basis. Epidemiologists, veterinarians, laboratory assistants, specialists, doctors and nurses are all included in the workforce strategy.
- Graduates from the ACHS Public Health Department and Hamelmalo Agricultural College are made to serve in the public health workforce throughout the country.
- Short-term training programmes, international conference participation, etc. are in place to upgrade and retain the public health workforce.
- Incentive mechanisms are in place to ensure there is equal distribution of public health workforce in terms of urban/rural localities.
- There is an animal workforce programme in place.

Areas that need strengthening/ challenges

- Develop and implement a comprehensive workforce development strategy as a key component to sustain best practices of public health services for health security.
- The career development path for graduates can be better defined.

- Tracking and reporting of the workforce strategy and its impact on the public health system could be implemented to facilitate the identification of obtained results or gaps.
- An accountability process should be defined in order to involve all training programmes of different stakeholders in an integrated manner.
- The animal workforce programme needs to be linked to the comprehensive workforce strategy so as to better operationalize the concept of One Health.

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

Preparedness includes the development and maintenance of national, intermediate and local or primary response level public health emergency response plans for relevant biological, chemical, radiological and nuclear hazards. This covers mapping of potential hazards, identification and maintenance of available resources, including national stockpiles and the capacity to support operations at the intermediate and local or primary response levels during a public health emergency.

Eritrea level of capabilities

Eritrea adopted the IDSR, 2012 and the African Unions' Basic Animal Disease Surveillance manual as the strategy to implement a One Health disease surveillance system. The country developed disease-specific preparedness and response plans and case management guidelines, such as National Avian Flu Response Plan 2006, National Ebola Epidemic Preparedness and Response Plan 2014, Draft National Pandemic Preparedness and Response Plan 2009.

Eritrea drafted a national pandemic/epidemic preparedness and response plan (2016) aimed at reflecting the 19 technical areas to address IHR (2005) requirements. In addition, disease-specific risk assessments have been conducted for high priority epidemic prone public health events (meningitis and poliomylitis) followed by a simulation exercise for polio.

In the health sector, the draft National Health Policy and the Health Sector Strategic Development Plan II (2017–2021) clearly prioritize communicable and other emergencies. Line ministries have institutionalized human resource development into local training institutions (such as four-month epidemiology programme, BSc. in Public Health, BSc. in Pharmacy, BSc. in Animal Health and other related diploma programmes). Field visits observed functional Epidemic Preparedness and Response (EPR) committees and rapid response teams at major tiers of service delivery.

Recommendations for priority actions

- Conduct an integrated all-hazard, vulnerability risk and resource mapping.
- Finalize the national multi-hazard public health emergency preparedness and response plan considering all essentials including EOCs, community engagement, cross-border collaboration, multisectoral coordination platform and health infrastructure.

- Review the national health infrastructure for emergency response to consider the establishment of permanent infection isolation facilities, and EOCs at national and regional levels.
- Ensure response capacity building in other sectors including: the security sector, the MoA through prioritization of the Veterinary Field Epidemiology Training Programme (Vet-FETP) and Field Epidemiology and Laboratory Training Programme (FELTP), while ensuring dedicated contingency funds for response and no stock-out of critical response stocks and laboratory reagents.
- Strengthen existing EPR structures and develop relevant SOPs and review them using regular exercises.

Indicators and scores

R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented – Score 2

Strengths/best practices

- Demonstrated leadership and governance, including financial commitments, in epidemic responses to recent volcanic eruptions, measles outbreak response, polio eradication initiatives, meningitis and malaria incidences.
- Developed zero draft of national pandemic/epidemic preparedness and response plan which will be developed into the national multi-hazard public health emergency preparedness and response plan to meet the IHR (2005) core capacity requirements as well as disease-specific epidemic response plans and hazards. EPR and human and animal health structures are established and deployed at all levels of service delivery and critical stockpiles for responses are available.
- Training programmes in epidemiology (basic), veterinarians, clinical cadres and laboratory technicians. Adoption of IDSR (2012) involving zoonotic diseases as a strategy for epidemic surveillance including the development of case management tools.

Areas that need strengthening/challenges

- Finalize the national multi-hazard public health emergency preparedness and response plan in consideration of all IHR (2005) core capacity requirements.
- Develop an annual operational plan and ensure its implementation with regular exercises.
- Streamline multisectoral coordination mechanisms to ensure the attainment of the One Health platform.
- Update and or develop disease-specific epidemic preparedness and response plans, and ensure stock-out of critical emergency response tracer items at all levels.

R.1.2 Priority public health risks and resources are mapped and utilized – Score 1

Strengths/best practices

None

Areas that need strengthening/ challenges

- Public health risk and resources mapping is not done.
- Establish measurable baseline for the roll-out of the multi-hazard emergency preparedness and response plan. To achieve this important milestone, conduct a national all-hazard risk profile and resource mapping exercise and ensure periodic assessment to ascertain contemporary and emerging threats.
- Advocate for dedicated emergency response contingency funds in national health budgetary allocations.

Emergency response operations

Introduction

A public health emergency operations centre is a central location for coordinating operational information and resources for strategic management of public health emergencies and emergency exercises. Emergency operations centres 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 centre (EOC) functioning according to minimum common standards; maintaining trained, functioning, multisectoral 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.

Eritrea level of capabilities

Health emergencies and risk management operations are top priorities of the Eritrea draft National Health Policy and the Health Sector Strategic Development Plan II (2017–2021). The Government is committed to develop a functional public health operations centre (PHEOC) to ensure effective coordination and information sharing, and reduce the response time in order to save lives.

Eritrea has established a multi-sectorial Public Health Emergency Management Committee (PHEMC) and subnational EPR committees to manage and coordinate outbreak responses. A national IHR focal point is appointed and available 24 hours a day, seven days a week. Weekly epidemiological bulletins are produced and shared with stakeholders. Case management guidelines for priority diseases in both human and animal health have been developed.

However, the current approach to EOC is ad hoc and event driven. It is not networked to other operational centres. Outbreak response has been coordinated from offices and conference facilities of the relevant authorities, and has used diverse channels to disseminate information and coordinate with partners.

Though the PHEMC (equivalent of an incidence management system) and its EPR committees exist at the national level, it is deficient in multi-disciplinary/-sectoral approaches, public communication platforms and partner liaisons. No emergency exercises have been completed. Case management guidelines are available for priority epidemic-prone diseases

Recommendations for priority actions

- Construct or identify dedicated infrastructure for PHEOC (national to zoba levels) equipped with relevant Information and Communications Technology (ICT) facilities and personnel to activate an emergency response.
- Develop relevant EOC SOPs and plans in line with the IHR all-hazards approach.
- Train staff in relevant competencies and conduct regular exercises and reviews.
- Develop a PHEOC-specific operational plan and procedures for the PHEMC structure.

Indicators and scores

R.2.1 Capacity to activate emergency operations – Score 1

Strengths/best practices

- Functional national PHEMC and EPR committees at subnational levels with clear ToRs have responded to recent outbreaks with insignificant attributable deaths.
- The IHR focal point is available 24 hours a day, seven days a week for communication and reporting on events to WHO and relevant partners within 48–72 hours of an outbreak.

Areas that need strengthening/challenges

- Identified procedures need to be developed to determine when to activate public health emergency operations.
- Establish/strengthen the PHEMC to include multidisciplinary specialties with incident command and technical structures.
- Recruit, train and deploy dedicated EOC staff with capacity to activate a response within 24-48 hours of an outbreak.

R.2.2 Emergency operations centre operating procedures and plans – Score 1

Strengths/best practices

- Emergency response committees exist even though information supplied shows no SOPs and operational plans.

Areas that need strengthening/challenges

- Develop EOC plans and procedures for PHEMC as the incidence command structure, describing key structural and operational elements for basic roles (including emergency management or command operations, planning, logistics and finance). This should be developed at both national and subnational level where EOCs are established.

R.2.3 Emergency operations programme – Score 1

Strengths/best practices

- Field visit demonstrated evidence of disease-specific simulations.
- Table-top exercises have been conducted for the polio eradication initiative.

Areas that need strengthening/challenges

- Conduct planned, periodic table-top/simulation exercises to test the EOC and incidence management command operational capabilities.

R.2.4 Case management procedures are implemented for IHR relevant hazards – Score 2:

Strengths/best practices

- Availability of case management guidelines for selected epidemic-prone public health events and IHR relevant hazards.
- Field visits have confirmed the presence of guidelines available in health facilities.

Areas that need strengthening/challenges

- SOPs need to be made available for the management and transport of potentially infectious patients in the community.
- Guidelines need to take on an all-hazards approach and case management needs to be integrated into the incident management system.

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, multisectoral 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.

Eritrea level of capabilities

Eritrea has committed to promote multisectoralism in health protection and is a member of the International Criminal Police Organization (INTERPOL). The INTERPOL office in Asmara collaborates with other law enforcement partners in the country and is reported to have carried out a number of joint operations linked with pharmaceutical crime. There is however no experience yet in the country involving security sectors to a public health emergency response.

Eritrea has successfully mapped out all relevant law enforcements (customs, border control, defence, police) that should be linked up with public health in the context of emergency preparedness and response. MOUs or other agreements (i.e. protocol) exist between public health and security authorities within the country.

Recommendations for priority actions

- Establish legal arrangements between ministries responsible for human and animal health, and security authorities for integrated emergency preparedness and response. This could be included in the anticipated public health act.
- National emergency preparedness and response plan should include operational integration with security sectors and provide necessary enabling environment to support the coordination.
- Establish mechanisms for information sharing between ministries responsible for human and animal health, and security authorities at national and local levels and agree to a clear command and control structure and responsibilities.

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 – Score 3

Strengths/best practices

- National IHR Technical Committee is in place with its ToRs and contact details of members.
- MoUs between MoH and sea port and airport authorities.
- Is a member of the INTERPOL and has established a National Central Bureau in Asmara.

- The Penal Code of the State of Eritrea 2015 – Chapter 12. “Offences against Public Health” has 12 articles (Art. 253 – Art. 264) related to human and animal health and diseases that are of public health importance.
- The customs department with other partner organizations have relevant roles in regard to IHR (2005).

Areas that need strengthening/challenges

- Existing committees and MoUs have to be reviewed and strengthened to function regularly and document what they have accomplished. They should also be assessed for their inclusiveness of partners.
- All functions should formulate SOPs and should be linked to law enforcement.
- Mechanisms of sharing information among partners should be delineated.
- Regular simulation exercises need to be conducted in response to disasters or emergencies, with regular training of relevant people and sectors.
- Institutionalize management of events and disasters; Eritrea’s current approach to managing situations such as disasters has been ad hoc, and often characterized by fire fighting.

Medical countermeasures and personnel deployment

Introduction

Medical countermeasures are vital to national security and protect nations from potentially catastrophic infectious disease threats. Investments in medical countermeasures create opportunities to improve overall public health. In addition, it is important to have trained personnel who can be deployed 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.

Eritrea level of capabilities

The MoH does not have an independent national countermeasures plan, but these are incorporated in the national epidemic response plan. A national stockpile of medical countermeasures is maintained by the Eritrean Pharmaceuticals Agency (PHARMECOR), which serves as the first point in case of an emergency. PHARMECOR procures drugs and supplies based on an emergency preparedness plan. Logistical capacity exists which plays a role in management and distribution of medical supplies and equipment. PHARMECOR procures drugs and supplies based on the emergency preparedness plan.

Eritrea has an agreement for implementation of tax exemption for donated medicines, related medical supplies, personal protective equipment and other disaster related equipment. There is a Medical Stores Department (an autonomous unit under the MoH) that has a well-organized distribution network. The Eritrean Food and Drugs Division has fast track procedures in place allowing rapid importation. In emergency situations, the special importation permits needed for countermeasures (i.e. not nationally registered/licensed), can be issued to ensure timely importation. This was demonstrated during the volcano eruption incident that occurred in south-east Eritrea.

Eritrea is not part of any formal regional or international medical countermeasure sharing or distributing agreements although the MoH has previous experience in requesting support for cholera, H1N1 and polio outbreaks. There are also no formal systems in place for sending or receiving medical countermeasure health personnel during a public health emergency from outside Eritrea. Moreover, there is no policy that directly addresses regulatory and licensure concerning reception of health personnel from an international source. The country has no capacity for local production of drugs and vaccines and no clear regional or international countermeasures procurement agreement. For sending and receiving countermeasures from an international source, cross-border agreements and regional agreements are not in place. Guidelines for international deployment of human resources, both from and into Eritrea, are in the process of development. There is a shortage of dedicated stockpiles for emergency situations.

Recommendations for priority actions

- Develop medical countermeasures and personnel deployment plans, SOPs and protocols.
- Establish/formalize agreements with neighbouring countries and regional organizations to ensure mutual cross-border aid for sending and receiving surge health personnel and medical countermeasures.

- Conduct inventory and document existing public health emergency experts in Eritrea that can be deployed for medical countermeasures.
- Update guidelines for licensing, monitoring and evaluating performance of deployed personnel.
- Ensure that the national emergency preparedness plan clearly describes the areas of medical countermeasures and deployment.

Indicators and scores

R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency –Score 2

Strengths/best practices

- National stockpile system is laid out in the national epidemic response plan and has proved to be effective during real events (such as EVD).
- The Medical Stores Department under the MoH, has a well-recognized distribution network with six zoba/regional centres to serve health facilities within 24 hours.
- PHARMECOR has framework agreements with different suppliers for emergency situations.
- PHARMECOR has fast track mechanisms built in for emergency distribution and procurement.
- Food and Drugs Division can fast track procedures in place allowing rapid importation. In an emergency situation “one-time” special importation permits can be issued to ensure timely importation.
- SOPs are available for receiving and issuing medical countermeasures, including for rapid customs clearance of donations.
- An agreement for implementation of tax exemption for donated medicines, related medical supplies, personal protective equipment and other disaster related equipment is in place.
- National SOPs are available for receiving and issuing medical countermeasures during public health emergencies, including for rapid customs clearance of donations.

Areas that need strengthening/challenges

- Develop a formal system for sending or receiving medical countermeasures from outside Eritrea.
- Strengthen PHARMECOR’s framework agreements with different suppliers for emergency situations.
- Formalize the implementation of tax exemption for donated medicines, related medical supplies, personal protective equipment and other disaster related equipment.
- Strengthen the capacity for supply chain management.
- PHARMECOR’s storage facilities for bulk items need to be elevated to the national level with stronger inventory control.
- Dedicated stockpiles for emergency situations are very limited and hence there is a need to build a system to ensure national stockpile holdings.

R.4.2 System is in place for sending and receiving health personnel during a public health emergency – Score 2

Strengths/best practices

- A national epidemic preparedness plan is in place.
- Hospitals have a system of dealing with mass causality accidents.
- Ad hoc hospital mobile surgical teams are established when needed.

Areas that need strengthening/challenges

- Develop a formal system for sending or receiving medical countermeasure health personnel during a public health emergency from outside Eritrea.
- Formalize agreements with neighbouring countries and regional organizations for sending and receiving surge health personnel.
- Develop agreements and SOPs for national, in-country deployment of rapid response teams, to ensure smooth deployment of health personnel between zobas.

Risk communication

Introduction

Risk communications should be a multilevel and multifaceted 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 disease outbreaks. 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 taken into account, including 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 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 should be tested and updated as needed.

Target

States 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.

Eritrea level of capabilities

Eritrea's health promotion policy and five year strategic plan (2012–2016) acknowledges risk communications and has multi-hazard components, but needs formal integration and operational articulation. The country has strong health promotion structures led by the MoH at the national level, through to the zoba, subzoba and community levels. There is strong collaboration with the Ministry of Education, the national schools network and the Ministry of Information to develop, produce and disseminate information education and communication (IEC) through various channels (radio, televisions, newspapers). The current strong communications are designed more for health promotion policies and not for multi-hazard and emergency preparedness and response. Based on experiences in other technical areas, it is evident that information channels between the public and authorities are in place and utilized in past events.

Recommendations for priority actions

- Adapt and incorporate IHR-specific risk communications components including a national multi-hazard emergency risk communication plan into existing national policies and plans.
- Develop and strengthen IHR and risk communications knowledge capacities in the MoH health promotion department and other national stakeholders for effective response and coordination.
- Review existing health promotion policy to integrate risk communications principles that acknowledge community risk perceptions and community participation in the development of key messages. This could extend to include monitoring and evaluation systems for the implementation of risk communication and community engagement strategies based on baseline information.

- Strengthen and formalize coordination and risk communication SOPs internally, with partners and with the subnational levels.

Indicators and scores

R.5.1 Risk communication systems (plans, mechanisms, etc.) – Score 2

Strengths/best practices

- Health promotion policy and five year strategic plan (2012–2016) has articulated the importance of risk communication and coordinated response in the sector.
- The Health Promotion Department in the MoH leads risk communications in collaboration with the ministries of education and information.
- The communication system has been tested in the polio simulation exercise conducted in July 2016 and is under review.

Areas that need strengthening/challenges

- Develop, test and implement an integrated multi-hazard risk communication plan and policy within a national preparedness and response framework.
- Adapt and integrate preparedness and emergency risk communication principles within health promotion.
- Further develop risk communications policy and SOP capacity in human resources, platforms and resources to deal with a large-scale emergency.

R.5.2 Internal and partner communication and coordination – Score 3

Strengths/best practices

- Good communication and coordination practices exist with the ministries of health, education, information, and health care workers and civil society organizations
- The ministries of education, information, religious affairs, civil society organizations, UNICEF and WHO are members of the coordinating body.

Areas that need strengthening/challenges

- To fully meet the capacity requirements, a formal mechanism to coordinate internal and partner communications needs to be developed and shared with the private sector, civil societies and stakeholders from other sectors.
- Develop, test and evaluate formal mechanisms to coordinate communications between different stakeholders/partners before, during and after a public health emergency.

R.5.3 Public communication – Score 3

Strengths/best practices

- The MoH has identified a national spokesperson for communicating to the public (i.e. Director General Public Health).
- Strong community-owned and -led social mobilization mechanisms are in place at the zoba, subzoba and village levels.
- Needs-based communication materials are regularly developed and translated into local languages.

Areas that need strengthening/challenges

- Use locally relevant technologies for public communications including mobile telephony to reach out to at-risk communities and general public; but messaging must be done carefully to avoid panicking the population.
- Strengthen and integrate community participation in developing key messages and engagement strategies that include community perceptions and preoccupations.
- Develop and integrate SOPs for communication pathways and mechanisms for public health emergencies including roles and responsibilities of risk communication rapid response teams.

R.5.4 Communication engagement with affected communities – Score 4

Strengths/best practices

- National and regional level health promotion working groups for outbreaks and health hazards exist.
- Members include community-based organizations and religious groups.
- Health promotion annual review meetings are used as opportunities to share experiences among stakeholders (ministries of health, education, tourism, labour and human welfare, information; civil society organizations (such as National Union of Eritrean Youth and Students (NUEYS), National Union of Eritrean Women (NUEW), National Confederation of Eritrean Workers (NCEW)); and health promotion officers.
- Ministry of Information conducts ongoing random calls to test and receive feedback from the community.
- Community health workers (health promoters) are used to provide information and receive information from grass root levels and pass it on to subzoba, zoba through to national levels.

Areas that need strengthening/challenges

- Further develop methods to reach out to communities (such as through SMS).
- Enhance the roles of religious and other community leaders and the private sector to engage with communities.

R.5.5 Dynamic listening and rumour management – Score 3

Strengths/best practices

- Health promotion occurs in collaboration with IDSR, health facilities and community networks, which receive and address rumours and misconceptions.
- A dynamic listening and rumour management system is in place (including internet based media monitoring) from kebabti up to national levels, which is aligned to media monitoring for event-based IDSR surveillance.

Areas that need strengthening/challenges

- There is a need to formally structure the listening and rumour management mechanism.
- Monitoring and evaluation of implementation risk communication strategies should be strengthened, so that it can also assist with rumour management.

OTHER IHR-RELATED HAZARDS AND POINTS OF ENTRY

Points of entry (PoE)

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 core capacities at 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.

Eritrea level of capabilities

Eritrea shares borders with three countries: Djibouti, Ethiopia and Sudan. Nine official points of entries are listed in Eritrea with four designated points of entry (international ports, airports, ground crossings), namely Asmara International Airport, Massawa Sea Port, Asseb Sea Port and Arbaete Asher Ground Crossing. At these designated points of entry, Eritrea utilizes the existing national structures and resources to meet their core capacity requirements under IHR (2005). Eritrea is committed to implement the IHR (2005) to effectively control the spread of infectious diseases and other events.

The MoH identified competent authorities for implementing the IHR requirements at each point of entry and sent to WHO a list of international points of entry authorized to issue Ship Sanitation Certificates (SSC). Therefore, significant efforts are in place to achieve the goals of IHR (2005), i.e. protect the health of travellers and crews, protect the health of the population, keep vehicles in a sanitary condition and free of sources of infection and contamination (including vectors), as well as ensure containment at source and capacity to respond to emergencies and implement public health recommendations.

Some points of entry have facilities for assessing potentially contaminated/infected travellers and animals either onsite or through liaison with local public health services.

Facilities are available for the assessment and quarantine of suspect travellers on arrangement with the zonal medical director. Asmara International Airport has access to appropriate medical services including diagnostic facilities for prompt assessment and care of ill travellers with adequate staff, equipment and premises. An ambulance is available 24 hours, seven days a week for the transportation of suspect or ill persons to the isolation centre located outside the airport.

Nevertheless, Eritrea does not have a contingency plan and SOPs at the points of entry. There is a need to equip facilities for isolation of humans, animals and plants at all points of entry, specifically at Asmara International Airport including for quarantine at other points of entry.

The existing MoUs between the medical director of MoH and the port manager and between Massawa Sea Port and Asmara International Airport are considered as best practices. There is availability of cases definitions and algorithms in the clinic at Asmara International Airport. The lack of specific specializations of human resources and their retention for IHR and IDSR at points of entry are common challenges.

Recommendations for priority actions

- Develop the national public health emergency contingency plan for responding to public health emergencies occurring at points of entry, and integrate with other public health response plans, covering all relevant sectors and services at points of entry (such as immigration, transportation, security, media, agriculture), and develop and disseminate to all key stakeholders.
- Elaborate the SOPs for screening, isolation, safe referral and transfer of ill travellers to appropriate medical facilities, with MoUs between health authorities and facilities for all designated points of entry within the country.
- Strengthen core capacities at all designated points of entry for all staff, including inspection of conveyances, agriculture programme for vector control and organization of ad hoc simulation exercises.

Indicators and scores

PoE.1 Routine capacities are established at PoE – Score 3

Strengths/best practices

- Available and appropriate medical services for the prompt assessment and care of ill travellers with adequate staff, equipment and premises at Asmara International Airport.
- Animal and plant quarantine programme is in place at Asmara International Airport.
- Condemnation certificate is given for disposed of items.
- No touch thermo-scanner for the first screening is available at the Airport.
- There is a designated isolation room outside the ports in case of emergency.
- Inspection is regularly done to ensure safe environment; there is a schedule to clean the environment, dispose of the wastes, and segregate and bury medical wastes.
- Inspection of conveyances is carried out and vector control is done by environmental management.

Areas that need strengthening/challenges

- Strengthen staff capacity for inspection of conveyances and surveillance for all hazards.
- Animal and plant quarantine need to be expanded to other points of entry.
- Make available yellow fever vaccinations at Asmara International Airport.
- Inspection test kits are not available.
- Strengthen collaboration with the agriculture sector.

PoE.2 Effective public health response at points of entry – Score 1

Strengths/best practices

- Disease-specific emergency contingency plan is available (EVD, H1N1).

- Trained committees at national, intermediate and subzoba levels from relevant stakeholders for responding to public health emergencies.
- MoUs are available between the medical director of the MoH and the port manager, and between Massawa Sea Port and Asmara International Airport.

Areas that need strengthening/challenges

- Develop national public health emergency contingency plan for responding to public health emergencies at points of entry.
- Equip isolation facilities and increase the number of ambulances for PHEIC.
- MoUs need to be developed in the other ports of entry.
- Organize simulation exercises.

Chemical events

Introduction

Timely detection and effective response of potential chemical risks and/or events require collaboration with other sectors responsible for chemical safety, industries, transportation and safe disposal. This would entail that State Parties need to have surveillance and response capacity to manage chemical risk or events and effective communication and collaboration among the sectors responsible for safety.

Target

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

Eritrea level of capabilities

In Eritrea, there is a clear policy and technical recognition for health protection and consumer safety in the face of chemical events. A number of sector-specific legislations (ministries of environment, agriculture, fisheries, health, trade and industry, transport and communication, science and technology, and finance) are developed related to chemical toxins and environmental protection control. These include Pesticides Act 2006, Environment Proclamation and the Eritrean National Code of Conduct for Environmental Security 1995, Pharmaceutical related Regulations and the Environmental Health Policy and Guidelines 1998, and Fishery Product Hazard Analysis Critical Control Points Regulations of 1998. The Government of Eritrea has also ratified relevant international conventions and treaties (Rotterdam Conventions, Basel Convention and Stockholm Convention).

As Eritrea is predominantly an agricultural country, most of the efforts and experiences gained are related to agrochemicals. A chemical risk assessment has been conducted and the reports produced focused on stockpiles of pesticides. Lately, the focus of the economy has shifted to mining and industrialization, which has created concern about the current arrangement of chemical safety in addition to chemicals-related security threats involving accidental, incidental or deliberate release.

There is clear acknowledgement that Eritrea needs an overarching legal policy instrument on chemicals risk reduction and health protection. Currently, intersectoral communication, coordination and partnership to enable coordinated preparedness, surveillance and response to chemicals events are managed on an ad hoc basis and is limited in scope.

Recommendations for priority actions

- Develop policy and associated statutory guidance for surveillance and response to chemical risk events. This can be part of a comprehensive planned public health act and national emergency preparedness and response plan. Relevant authorities identified under the IHR JEE process should be part of this development and subsequent implementation.
- Review and improve intra- and inter-sectoral coordination and collaboration to strengthen information sharing and communication methods to enable timely and proper conduct of surveillance and response to chemical events.
- Jointly conduct surveys and assessment of hazardous substances that potentially affect the health of humans and animals, and the environment.

- Conduct resource assessments of responding sectors and advocate for improvement in capacity and capability of each to control and prevent the adverse effects of chemicals.

Indicators and scores

CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies – Score 2

Strengths/best practices

- Sector specific chemicals-related regulations and policies exist.
- Existing laboratory facilities are experienced in the detection of environmental and consumer chemicals.
- Monitoring and control of the risk of chemical contamination or pollution of the environment is on an ad hoc basis.
- Monitoring and assessment of seawater contaminants for chemical, oil and other hazardous spillage.
- Control and monitoring of the effects of hazardous byproducts of local and industrial level mining activities.
- Inventory of installations using chemicals.
- Asmara International Airport management with the participation of key sectors conducted several airport emergency response exercises for different types of emergencies, including a simulation of an airplane crash during landing and a bomb-threat situation.

Areas that need strengthening/challenges

- Establish a national chemical/toxicology unit as part of the national disaster response management.
- Need for coordinated capacity for surveillance, risk mapping and timely emergency responses to chemical events as and when they occur.
- Establish and strengthen national and local/zonal laboratories for chemicals detection.
- Develop procedures/guidelines for risk assessment in chemicals among all government and public stakeholders.
- Develop awareness programmes for the public with the cooperation and collaboration of the Ministry of Information and local municipalities.
- Establish specialized waste disposal systems and facilities for hazardous chemicals.
- Establish a national poison information centre/service.

CE.2 Enabling environment is in place for management of chemical events – Score 1

Strengths/best practices

- Response to pesticide spillage and costal area (seawater) oil/chemical contamination events.
- Analysis of water, air and soil sediment for chemical hazards.
- The ministries of transport and information and the department of customs and importation have set-ups for the control of import and export of chemicals through permits and inspections in collaboration with the ESI and forward samples for analysis and quarantine of suspected imports.
- MoH and ESI monitor the quality of imported and locally produced pharmaceutical drugs and foodstuffs.

Areas that need strengthening/challenges

- Establish an intersectoral emergency response coordinating mechanism to provide timely and

appropriate response to chemical/toxic events.

- Chemical risk assessment and management strategies need to be developed (at national level) and incorporated into existing government and corporate policies.
- Multisectoral and multidisciplinary coordinated emergency exercises should be planned and conducted with particular emphasis to chemical and toxic events.
- Create public awareness regarding the uncontrolled use or misuse of harmful chemicals and pesticides among local miners and farmers.
- Establish a national poison control centre.

Radiation emergencies

Introduction

To counter radiological and nuclear emergencies, timely detection and an effective response towards potential radiological and nuclear hazards/events/emergencies are required in collaboration with sectors responsible for radiation emergency management.

Target

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

Eritrea level of capabilities

In Eritrea, there are currently no reported radio-nuclear sources (geological, industrial and medical) that can cause risk to public health. Border surveillance for illegal transportation and passage of radionuclides through the country has been in place but in a very limited capacity.

The ministries of health and agriculture have initiated programmes to introduce laboratory capacity to conduct assessment and surveillance for quantitative breast milk among breast feeding mothers using ionized tracers. Similarly the MoA has a number of projects covering soil, animal and plant productivity using ionized supplement/tracers for research and the basic laboratory set-up to monitor the results. There is however no organized surveillance and response capacity to manage radio-nuclear events in the country.

Recommendations for priority actions

- Develop optimum capacity to manage a radio-nuclear event, which could involve the development of regulatory policy either of its own or as part of the public health act and national emergency preparedness and response plan.
- Strengthen the necessary resources, such as human, infrastructure, skills to detect and response to radio-nuclear events.
- Systematically exchange information between relevant sectors for risk assessment, surveillance and response to radio-nuclear events, which could be part of the overall national public health surveillance framework.

Indicators and scores

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

Strengths/best practices

- Regulatory proclamation and guidelines for radiation are developed, and awaiting enactment by the Eritrean Government.

Areas that need strengthening/challenges

- Develop human resources to increase detection and response capabilities.

RE.2 Enabling environment is in place for management of radiation emergencies – Score 1

Strengths/best practices

- The MoH has a draft document, "Proclamation No. /2012. The Eritrean Radiation Safety and Security Regulatory Authority Proclamation", which is awaiting ratification.

Areas that need strengthening/challenges

- Develop the right policy environment associated with guidelines and SOPs.
- Develop a radiation safety programme.

Appendix 1: IHR (2005) and JEE tool

In May 2005, the Fifty-eighth World Health Assembly (WHA) adopted the International Health Regulations (IHR) (2005), which subsequently entered into force on 15 June 2007. The purpose and scope of the IHR (2005) are “to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade”. All States Parties are required by the IHR (2005) to develop certain minimum core public health capacities.

IHR capacity requirements are defined as “the capacity to detect, assess, notify and report events” in Article 5, Annex 1A on “Core capacity requirements for surveillance and response”, and Annex 1B on “Core capacity requirements for designated airports, ports and ground crossings”. In addition, the IHR Core Capacity Monitoring Framework has a checklist and indicators that should be used for monitoring progress in the development of IHR core capacities in States Parties (<http://www.who.int/ihr/publications/checklist/en/>).

As stated in Annex 1A.2, each State Party shall assess the ability of existing national structures and resources to meet the minimum requirements described in Annex 1. On the basis of such assessments, States Parties shall develop and implement plans of action to ensure that these core capacities are present and functioning throughout their territories.

In 2012, the WHA (WHA65.23) urged States Parties to take necessary steps to prepare and carry out appropriate national implementation plans in order to ensure the required strengthening, development and maintenance of core public health capacities as provided for in the IHR (2005).

The IHR Review Committee on Second Extensions for Establishing National Public Health Capacities and on IHR Implementation (WHA 68/22 Add.1) suggested that “... and with a longer term vision, the Secretariat should develop through regional consultative mechanisms options to move from exclusive self-evaluation to approaches that combine self-evaluation, peer review and voluntary external evaluations involving a combination of domestic and independent experts. These additional approaches should consider, amongst other things, strategic and operational aspects of the IHR, such as the need for high level political commitment, and whole of government/multisectoral engagement. Any new monitoring and evaluation scheme should be developed with the active involvement of WHO regional offices and subsequently proposed to all States Parties through the WHO governing bodies’ process.”

The call for the move from “exclusive self-evaluation” to external evaluation comes from the recognition that transparency and mutual accountability in the international community are essential in implementing IHR collectively. A technical consultation meeting on the IHR Monitoring and Evaluation Framework, organized in Lyon in October 2015, suggested the development of processes and a tool to conduct a “joint” external evaluation.

The tool is organized according to the following core elements:

- Preventing and reducing the likelihood of outbreaks and other public health hazards and events defined by IHR (2005) is essential.
- Detecting threats early can save lives.
- Rapid and effective response requires multisectoral, national and international coordination and communication.

Appendix 2: JEE purpose and process

Purpose of the JEE

The JEE tool is intended to assess country capacity to prevent, detect and rapidly respond to public health threats independently of whether they are naturally occurring, deliberate or accidental. The purpose of the external evaluation process is to measure country-specific status and progress in achieving the targets. This will require a sustainable and flexible process to allow for additional countries to participate and regular evaluation visits. The first external evaluation will establish a baseline measurement of the country's capacity and capabilities, and subsequent evaluations will help to identify the progress made and ensure that any improvements in capacity are sustained.

JEEs share a number of important features including: voluntary country participation; a multisectoral approach by both the external teams and the host countries; transparency and openness of data and information sharing; and the public release of reports. It also refers to the joint process during an external evaluation (envisioned to take place approximately every five years) where a team of national experts first prepares a self-assessment that is supplied to the external team prior to the onsite visit. The external team uses the same tool for their independent evaluation, working together with the national team in interactive sessions.

The external evaluation allows countries to identify the most urgent needs within their health security system, to prioritize opportunities for enhanced preparedness, response and action, and to engage with current and prospective donors and partners to target resources effectively. Transparency is an important element for attracting and directing resources to where they are needed the most.

Process

The first stage of the evaluation is a country survey completed by the country using self-reported data for the various indicators on the JEE tool. This information is then given to the JEE team comprising national and international subject matter experts. Review of this self-assessment data provides the team members with an understanding of the country's baseline health security capabilities. These subject matter experts will then visit the country for facilitated in-depth discussions of the self-reported data and participate in structured site visits and meetings organized by the host country. The evaluation team will use the findings of various relevant evaluations and assessments such as the World Organisation for Animal Health Performance of Veterinary Services (OIE PVS) pathway, monitoring and evaluation of disaster risk reduction and others.

After conducting the evaluation visit, the JEE team will draft a report to identify status levels for each indicator, and present an analysis of the country's capabilities, gaps, opportunities and challenges. This information will be shared with the host country, and with permission of the host country disseminated to various other stakeholders in order to facilitate international support of country implementation efforts, share best practices and lessons learned, promote international accountability, engage stakeholders, and inform and guide IHR implementation both in the host country and internationally.¹

¹ In the WHO African Region, IHR implementation is within the context of Integrated Disease Surveillance and Response Strategy and in Asia Pacific (South-East Asia Region and Western Pacific Region), IHR implementation is in the context of Asia-Pacific Strategy for Emerging Diseases.

Appendix 3: Eritrea assessment background

Mission place and dates

Asmara, Eritrea; 3–7 October 2016

Mission team members:

Names	Country (or affiliate multilateral)	Agency
Ambrose Otau TALISUNA (Lead)	Congo	WHO/AFRO
Ebba Kalondo	Congo	WHO/AFRO
Freddy Banza-Mutoka	Zimbabwe	WHO/AFRO/IST
Shikanga O-Tipo	Sierra Leone	WHO
Sohel Saikat (Co-Lead)	Switzerland	WHO/HQ
Ahmed Zaghloul	Ethiopia	Africa CDC
Janneth Mghamba	Tanzania	MoH
Thomas Nagbe	Liberia	MoH
Mohammed Abdulaziz	Ethiopia	Africa CDC
Roland K. Wango	Congo	WHO/AFRO

Objective

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

Preparation and implementation of the mission

- Held weekly teleconferences on the mission
- Identifies team lead and co-lead
- Put together the JEE team
- Shared self-assessment report and other technical documents with the JEE team
- Provided logistic assistance to the 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 conducted in one week, which limited the amount and depth of information that could be managed.
- It is assumed that the results of this evaluation will be made publically available.
- The evaluation is not an audit and information provided by Eritrea was not independently verified. Information was discussed and an evaluation rating was mutually agreed to by Eritrea and the JEE team. This is a peer-to-peer review.

Key host country participants and institutions from Eritrea

Organizations

Minister of Health – Central level

- Ministry of Health - Legal Advisor
- Ministry of Health - Technical Advisor
- Director General for Health Services
- Director General for Public Health Department
- Director General for Planning and Human Resource Department
- Director General Administration and Finance, MOH
- Director of National Medicines and Food Administration plus staff
- Director of Health Systems and Services
- Director of CDC plus staff
- Director of Nursing and Services
- Director of Policy and Health Systems
- Director of Environmental Health Department
- Director of National Health Laboratory
- Director of Health Promotion
- Health Promotion
- Director and staff of Environmental Health Division
- EPI
- IDSR
- Health Management and Information System (HMIS)
- Nursing and Services Division
- National Health Laboratory
- National IHR Technical Committee, national IHR focal point

Non-governmental organization

- WHO
- UNICEF

Key stakeholders

- Ministry of Agriculture
- National Security Agency (Police, Immigration, Interpol, Internal Security
- Ministry of Marine Resources, Director General
- Ministry of Defense
- Ministry of Education
- Ministry of Foreign Affairs

- Ministry of Information
- Asmara International Airport Management
- Ministry of Labour and Human Welfare
- Ministry of Local Government
- Ministry of Trade and Industry
- Ministry of Transport and Communication
- Ministry of Justice

Supporting documentation provided by Eritrea

Documents:

- Internal self-assessment report of the status of implementation of IHR (2005), 18–19 August 2016

National legislation, policy and financing

- National relevant legislations (from agriculture, health, customs, immigration, port authorities, Ministry of Land, Water and Environment and others)
- Review reports of national government instruments (40), policies conducted, updated guidelines (e.g. National Inspection and Quarantine Policy guidelines, SOPs and IDSR Technical Guidelines, 2010)
- National Health Policy 2010 and Health Sector Strategic Development Plan II (draft 2017–2021)
- IHR core capacities assessment report, 2010

Instruments reviewed

- Eritrean Transitional Civil Code
- Eritrean Transitional Penal Code
- Proclamation 37/1993 (to determine the establishment, powers and functions of the Government of Eritrea)
- Legal Notice 14/1993 (to determine the powers and responsibilities of ministries, commissions, authorities and offices of the Government of Eritrea (legal notice))
- Proclamation to establish the Massawa and Assab Port Authority
- Eritrean port regulations (legal notice)
- Proclamation to establish dock labour supply agency
- Proclamation to establish a maritime shipping services corporation
- Marine Pollution Code (draft)
- National Fishing Vessel Regulations (legal notice)
- Eritrean Civil Aviation Proclamation
- Convention on International Civil Aviation
- Annex 9 of the above Convention
- Eritrean National Air Transport Facilitation Programme

- Land Transport Proclamation
- Proclamation to establish the land transport authority
- Transportation of goods regulations (legal notice)
- Proclamation for forestry and wild life conservation and development
- Plant Quarantine Proclamation
- Regulations for the issuance of forestry permits (legal notice); regulations for the issuance of wildlife permits (legal notice)
- Regulations for importation, handling, use, storage and disposal of pesticides (legal notice)
- Proclamation to promote the development of mineral resources
- Regulation on mining operations (legal notice)
- Proclamation to regulate the issuance of travel documents, entry to and from Eritrea, and alien residence permit (unofficial)
- Regulations for travel documents and immigration (legal notice)
- Eritrean Water Proclamation
- Regulations for the issuance of permit for the importation or exportation of ozone depleting substances-based equipment or products (legal notice)
- Customs proclamation
- Animal Health Proclamation (draft)
- Animal Quarantine Proclamation (draft)
- Animal Prevention of Cruelty Proclamation (draft)
- Processed Meat and Poultry Products Proclamation (draft)
- Fresh Meat Hygiene and Inspection Proclamation (draft)
- Milk and Milk Products Proclamation (draft)
- Veterinary surgeon (draft)
- Veterinary Drugs and Biologics Proclamation (draft)
- Registration and Accreditation of Veterinarians (draft)

IHR coordination, communication and advocacy

- Tutorial for Notification Assessment Under the IHR (2005); Feedback to the 3rd Tutorial on Annex
- The IHR Meeting Minutes to sensitize IHR Technical Committee and Review Status of IHR Implementation, 28 March 2013
- Training on Offline Version of Ship Inspection and Ship Sanitation Certificates – SSCs at Massawa Sea Port on 25–27/04/16
- Group Work Exercise on IHR Decision Instrument: Ougadougou
- National IHR (2005) Action Plan for Assab Sea Port, Implementation period (23 Nov 2012–2013)
- Report on the IHR (2005) Implementation Training at Asmara International Airport on 12–14/09/2012
- IHR (2005) Implementation Training at Massawa Sea Port on 15–17/11/12
- IHR (2005) Implementation Training at Tesseney Ground Crossing on 4–6/12/12

- IHR (2005) Implementation Training at Assab Sea Port on 21–23/11/12
- IHR collaborate meeting between IHR coordinating committee of Northern Red Sea and Massawa Sea Port on 21–23/12/2012
- SOPs/Guidelines for Quarantine and Inspection
- TORs for IHR Technical Committee
- MoU between Asmara International Airport and Medical Director of the Zoba Maekel
- MoU between Massawa Sea Port Manager and Northern Red Sea Medical Director
- IHR Report to the World Health Assembly

Antimicrobial resistance

- National Medicine Policy, 2010
- National Pharmacovigilance Policy, 2014
- Health Care Waste Management Policy, MoH
- National action plan for implementing HCWM, MoH, Nov. 2009
- Infection prevention control programme, MoH, 2004
- Infection prevention guidelines for health care facilities with limited resources
- Status of antibacterial resistance: a cross sectional study in five Eritrean hospitals (recently initiated research proposal, July 2016)
- Eritrean National List of Medicines, 6th edition, June 2015
- Scheduling of medicines (draft 2016)
- Rational use of medicine manual
- Proclamation 36/1993 to control medicines, medical supplies, cosmetics and sanitary items.

Zoonotic disease

- OIE PVS evaluation report of veterinary services of Eritrea, 2011
- PVS GAP analysis: preparation of a plan to strengthen the veterinary services of Eritrea, 2011
- Standard Methods and Procedures (SMPs) for Control of Brucellosis in the Greater Horn of Africa
- Standard Methods and Procedures (SMPs) for control of Rift Valley Fever (RVF) in the Greater Horn of Africa
- The National Integrated Disease Surveillance and Response (IDSR) Guidelines, 2nd edition, 2011

Food safety

- Proclamation No. 105/1998 and the Fishery Product Regulation, Legal Notice No. 40/1998
- Proclamation 75/1995 to provide the establishment of the Eritrean Standards Institution
- Action plan for Integrated Water Resource Management (IWRM) in Eritrea, December 2009 Asmara, Eritrea
- Gazette of Eritrean Laws, Vol. 8/1998 No. 4, Asmara, May 25, 1998
- Legal Notice 213/2006, for raw and pasteurized milk safety and quality regulation
- Eritrean Water Proclamation No. 162/2010

- Former meat inspection regulation
- Legal Notice No. 42/1998 on:
 - The Potable Water Regulations
 - The standards of water intended for human consumption, to be observed in fishery product activities within the context of the fishery product
- Draft Water Standard (for permissible level for chemical, biological and physical)
- Fresh meat hygiene and inspection Regulation
- Processed meat and poultry product proclamation
- Milk and milk product regulation
- Measuring system for: total hardness, heavy metals, (lead, nitrates, ammonium, calcium, magnesium, chlorine, chlorides, sodium)
- Health sector policy and policy guidelines of 2010
- Proclamation No. 104/1998 – the Fisheries Proclamation
- Proclamation No. 105/1998 – the Fishery Product Protection
- Legal Notice No. 40/1998 – the Fishery Product Hazard Analysis Critical Control Points (HACCP) Regulations
- Gazette of Eritrean Laws, Vol. 12/2003 No. 4, Asmara, 30th April, 2003
- Legal Notice No. 64/2003v – the Aquaculture Products Regulations
- Legal Notice No. 68/2003 – Potable Water Regulations In Fishery Product Activities
- Legal Notice No. 69/2003 – the Fishery Products Importation and Exportation Regulations

Biosafety and biosecurity

- National health laboratory, biosafety manual, 2012
- OIE-laboratory biosafety guidelines

Immunization

- EPI coverage survey of 2009 and 2012
- WHO & UNICEF joint estimate, 2014
- Eritrean Population Health Survey, 2010
- Cold chain assessment and inventor of health facilities in the country providing immunization service, 2009 and 2016
- Comprehensive EPI review and PCV-13 Post Introduction Evaluation (PIE) 2016 assessment results
- Effective Vaccine Management assessment (EVM), 2011
- Stock Management Tool (SMT) software, 2016

National laboratory system

- National health laboratory EQA enrolment and results
- Certificate of achievements for malaria EQA, 2015
- Certificate of achievements for mycobacteriology-TB laboratory, 2015

- Quality Manual
- Safety Manual
- Clinician Handbook and SOP's for the TB Laboratory
- TB and HIV testing algorithm guidelines

Real-time surveillance

- IDSR technical guidelines, 2nd edition, 2012
- Guidelines for the prevention and control of selected epidemic-prone disease in Eritrea

Reporting

- OIE reports (World Animal Health Information System—WAHIS)
- IHR reports to the World Health Assembly

Workforce development

- Human resources five year strategic plan of the Eritrean MoH (2012–2016)
- Organization structure of the Ministry of Health of the levels of governance
- OIE Gap Analysis, 2011
- ACHS, curriculum of Public Health Officer (BSc.)
- ACHS, four-month epidemiology course training curriculum
- Health professional's database, Ministry of Health
- Animal health experts database, Ministry of Agriculture

Preparedness

- IDSR technical guidelines, 2nd edition, 2012
- Manual of basic animal disease surveillance
- National Health Policy, 2010
- National Health Strategic Plan, 2010–2014
- National Health Policy and the Health Sector Strategic Development Plan II (draft 2017–2021)
- Meningitis Risk Assessment, 2016
- National Ebola Epidemic and Response Plan, 2014
- National MOH–MOA Joint Avian Influenza Preparedness and Response Plan, 2006
- National IHR Action Plan, 2014
- Draft national multi-hazard public health emergency preparedness and response plan, 2016

Emergency response operations

- IDSR technical guidelines, 2nd edition, 2012
- Manual for basic animal surveillance
- Guidelines for the prevention and control of selected epidemic-prone disease in Eritrea.

Linking public health and security authorities

- MoUs on IHR on points of entry of Massawa Sea Port and Asmara Airport
- National Ebola Epidemic Preparedness Committee, ToR
- Draft emergency preparedness and response plan

Medical countermeasures and personnel deployment

- IDSR technical guideline, 2nd edition, 2012
- National ebola technical guideline and response plan
- National avian flu technical guideline and response plan
- Medical and surgical emergency technical guidelines for health facilities at all levels.
- IHR (2005) legally binding regulations framework document

Risk communications

- Strategic Plan for Health Promotion 2012–2016 (mid term reviewed)
- Draft national preparedness and response action plan for national public health emergencies of national and international concern 2016–2020 (Annex 111 Logframe)
- Health Promotion Policy, 2006
- Media landscape analysis, Ministry of Information, 2016
- KAP survey, child health, 2010
- KAP survey WASH, 2012
- EPI coverage survey, 2013
- Cultural and behavioural analysis for WASH, 2015
- IEC materials assessment report, 2015
- Polio campaigns independent monitoring report, January 2016
- Partners mapping analysis, 2014
- Health promotion annual report, 2014 and 2015
- Annual work plans UNICEF and Ministry of Information, 2015/16
- News reports, press releases
- Various IEC materials in different languages
- Annual health facility report
- Health promotion organogram/structure
- Field visit findings
- Presentation made by Health Promotion Director, 6 October 2016

Points of entry

- Assessment tool for core capacity requirements at designated airports, ports and ground crossings with its result
- Policies and SOPs for quarantine and inspection in which IHR (2005) is incorporated

- MoU between Medical Director, MoH and Port Manager for Asmara international Airport and Massawa Sea Port
- Guide to aviation sanitation, MoH
- Contact address of committees at points of entry for three levels (national, intermediate and at points of entry)
- Proposed case definitions for diseases and syndromes that may be placed under surveillance at point of entry
- Schedule of health quarantine at Asmara International Airport
- Quarantine of agriculture schedule at Asmara International Airport
- Cleaning and gardening services agreement at Asmara International Airport
- Video of ship sanitation offline training and screening passengers
- Water safety laboratory results

Chemical events

Ministry of Land, Water and Environment

- Proclamation No.162/2010: Eritrean Water Proclamation
- National environmental assessment procedures and guideline, 1999
- National Implementation Plan on Persistent Organic Pollutants, 2012
- Regulation on Ozone Depleting Substances, Legal Notice No. 117/2010
- Action Plan for Integrated Water Resource Management (IWRM), 2009
- Environmental Law, 2012 (draft)
- National Chemical Profile: Department of Environment, 2014
- National Environmental Management Plan, 1995

Ministry of Agriculture

- Guideline for effective use of pesticides
- Pesticides safety
- Minimum requirement for agricultural pesticides application equipment, volume one
- Minimum requirement for agricultural pesticides application equipment, volume two
- Disposal of black quantity of absolute pesticides in developing countries
- Pesticides storage and stock control manual, FAO pesticide disposal series 3
- Pesticides storage and stock control manual, FAO pesticide disposal series 9
- Country environmental soil assessment, June 2008

Ministry of Marine Resources

- International Costal Area Management Plan (ICAM)
- MoMR Regulations in Gazette of Eritrean Laws, Vol. 8/1998 and Vol.12/2003
a.Legal Notice no.41 1998: The Fishery Product Hazard Analysis Critical Control Points (HACCP) Regulations

b. Legal Notice no. 64/2003: The Aquaculture Products Regulations

- 65/2003: The Additives Regulations
- 66/2003: The Heavy Metals Regulations
- 67/2003: The Factory Vessel Regulations
- 68/2003: Potable Water Regulations in Fishery Product Activities
- 69/2003: The Fishery Products Importation and Exportation Regulations
- 71/2003: Regulations Issued to Amend the Fishery Product Regulations

Eritrean Standards Institute

- Proclamation 75/1995 to provide the establishment of Eritrean Standard Institute

Radiation emergencies

- Draft Proclamation No./2012: The Eritrean Radiation Safety and Security Regulatory Authority Proclamation
- Presentation on radiation emergencies

