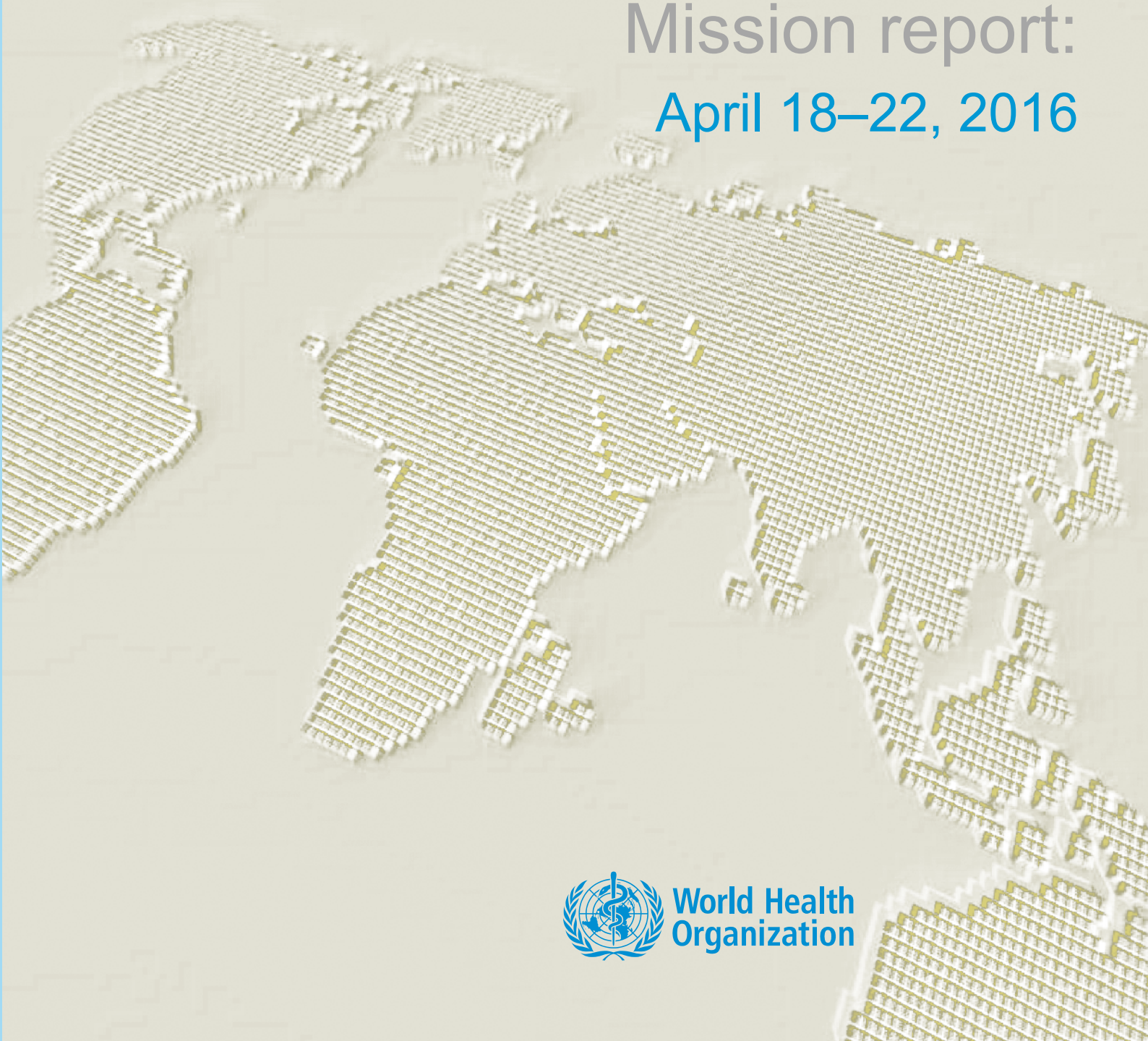
JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES

of the

REPUBLIC OF MOZAMBIQUE

Mission report:

April 18–22, 2016



World Health Organization

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- Global Health Security Agenda for their collaboration and support.

Contents

Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
AFBA	African Biosafety Association
AFENET	African Field Epidemiology Network
AMR	Antimicrobial Resistance
ANEA	National Atomic Energy Agency
ARIS	Animal health Resource Information System
BEP	Biosafety Engagement Programme
BES	Weekly epidemiology bulletin
CDC	Centers for Disease Control and Prevention
CENOE	National Emergency Operations Centre
CISM	Manhica Health Investigation Centre
CNCS	National Council to Combat HIV/AIDS
CPLP	Community of Portuguese Language Countries
DNAM	National Directorate of Medical Assistance
DNSP	National Directorate of Public Health
DST	Drug susceptibility test
DQS	Data Quality System
EPI	Expanded Programme on Immunisations
EQA	External Quality Assurance
ESAN	Strategy for nutritional and food security
FAO	Food and Agriculture Organization of the United Nations
FELTP	Field Epidemiology and Laboratory Training Program
GARP	Global Antibiotic Resistance Partnership
GIIBS	Inter-Institutional Biosafety Group
GMO	Genetically Modified Organisms
HCAI	Healthcare Associated Infections
HCM	Maputo Central Hospital
HIV	Human Immunodeficiency Virus
HPV	Human papilloma virus
IBC	International Biosafety Committee
IDSR	Integrated Disease Surveillance and Response
IEC	Information, Education, Communication
IFBA	International Federation of Biosafety Associations
IHR	International Health Regulations
INE	National Institute of Statistics
INGC	National Institute of Disaster Management
INS	National Institute of Health
JEE	Joint External Evaluation
LNHAA	National Laboratory for Food and Water Hygiene

LPA	Line probe assay
LQMS	Laboratory Quality Management System
MCM	Medical countermeasures
MICOA	Ministry of Coordination of Environmental Affairs
MISAU	Ministry of Health
MoH	Ministry of Health
MOU	Memorandum of Understanding
NFP	National Focal Point
OIE	World Organization for Animal Health
PNDRH	National Human Resources Development Plan
POC	Point of Care
POE	Points of Entry
PVS	Performance of Veterinary Services
RDT	Rapid diagnostic test
SADC	Southern Africa Development Community
SLMTA	Strengthening Laboratory Management Through Accreditation
SOP	Standard operating procedures
TB	Tuberculosis
UEM	University Eduardo Mondlane
VMA	Vaccine Management Assessment
WAHIS	World Animal Health Information System
WHO	World Health Organization

Executive summary

Background

This assessment is a Joint External Evaluation (JEE) assessment using the World Health Organization (WHO) International Health Regulations (IHR) (2005) JEE tool. A multi-sectoral team of experts from Member States, and from WHO and FAO (the Food and Agriculture Organization of the United Nations) participated in the week-long assessment which took place during April 22–26, 2016 in Maputo, Republic of Mozambique, the third country to volunteer for a JEE. Prior to this mission, the Government of Mozambique completed a self-assessment using the JEE tool; the results of this self-assessment, including scores for the 19 technical areas, were presented to the External Assessment Team. The External Assessment Team and experts from Mozambique jointly assessed the results to determine current strengths, areas for strengthening, and priority actions, and to finalise the technical area scores.

The JEE team identified three priority actions. First, the development and ratification of a comprehensive modern public health law is critical to allow the Mozambique government to ensure public health security, and will facilitate more effective collaboration with other sectors, including the security and animal health sectors.

Second, implementation of a "One Health" approach throughout government – across sectors and between ministries – will be critical in an era of globalization and emerging diseases, in which pathogens of animal origin are an important and growing global threat. In a first step towards collaboration between the animal and human health sectors, Mozambique completed the World Organization for Animal Health (OIE) Performance of Veterinary Services assessment, the results of which were used to inform the JEE. This assessment is the result of significant collaboration between Mozambican experts from departments of interior, defence, animal health, atomic energy, emergency management, and foreign affairs, as well as numerous colleagues working in public health. Approval of the necessary MOUs, SOPs and other administrative mechanisms to facilitate and formalize communication and coordination across sectors should be a national priority.

Finally, the health sector has clearly made a great deal of progress in strengthening systems for meeting IHR (2005) core capacities; however, ongoing commitment and continued investment in human resources, infrastructure and maintenance of systems and structures will be needed to improve capacity and prepare for future challenges.

During this evaluation, the JEE team and Mozambican experts developed approximately 60 priority action recommendations. Because the process incorporates the knowledge gained from previous assessments in a multisectoral, "One Health" approach, this assessment can and should serve Mozambique as a common platform from which to develop a country plan/roadmap for the way forward, including prioritization of internal and external resources.

Implementation is always a challenge, and this is next step for Mozambique. Mozambique is to be commended for the capacities which have been developed, including numerous components of a strong infrastructure. The professionalism, transparency, and commitment of Mozambican professionals is one of the country's greatest assets.

The team's recommended next steps to leverage this assessment include:

- Obtaining commitment from internal and external partners and stakeholders to use this assessment as a common platform for coordination and prioritization of activities.
- Pursuing both domestic financing and donor engagement to support the plan technically and financially.

- Using the 60 key priority actions to make progress on implementation. As these are completed, the JEE tool should be referenced to determine the next steps by reviewing what additional capacity is needed to improve the score in a particular area.
- Conducting an annual internal review.
- Repeating the JEE in 3-5 years.

Mozambique scores

Capacities	Indicators	Score
National Legislation, Policy and Financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR.	2
	P.1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR (2005)	2
IHR Coordination, Communication and Advocacy	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR.	2
Antimicrobial Resistance	P.3.1 Antimicrobial resistance detection	1
	P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens	2
	P.3.3 Health care associated infection prevention and control programmes	3
	P.3.4 Antimicrobial stewardship activities	1
Zoonotic Disease	P.4.1 Surveillance systems are in place for priority zoonotic diseases/pathogens	3
	P.4.2 Veterinary or animal health workforce	2
	P.4.3 Mechanisms for responding to infectious and potential zoonotic diseases are established and functional	1
Food Safety	P.5.1 Mechanisms for multisectoral collaboration are established to ensure rapid response to food safety emergencies and outbreaks of foodborne disease	3
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 program	3
	P.7.2 National vaccine access and delivery	4
National Laboratory System	D.1.1 Laboratory testing for detection of priority diseases	3
	D.1.2 Specimen referral and transport system	3
	D.1.3 Effective modern point of care and laboratory based diagnostics	2
	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 Integration and analysis of surveillance data	3
	D.2.4 Syndromic surveillance systems	3/2
Reporting	D.3.1 System for efficient reporting to FAO, OIE and WHO	3
	D.3.2 Reporting network and protocols in country	2
Workforce Development	D.4.1 Human resources are available to implement IHR (2005) core capacity requirements	2
	D.4.2 Field Epidemiology Training Program or other applied epidemiology training programme in place	3
	D.4.3 Workforce strategy	3
Preparedness	R.1.1 National multi-hazard public health emergency preparedness and response plan is developed and implemented	1
	R.1.2 Priority public health risks and resources are mapped and utilized.	1

Emergency Response Operations	R.2.1 Capacity to activate emergency operations	4
	R.2.2 Emergency Operations Centre operating procedures and plans	5
	R.2.3 Emergency Operations Programme	3
	R.2.4 Case management procedures are implemented for IHR (2005) 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	2
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	4
Risk Communication	R.5.1 Risk communication systems (such as plans, mechanisms, etc.)	2
	R.5.2 Internal and partner communication and coordination	3
	R.5.3 Public communication	4
	R.5.4 Communication engagement with affected communities	3
	R.5.5 Dynamic listening and rumour management	3
Points of Entry (PoE)	PoE.1 Routine capacities are established at points of entry	2
	PoE.2 Effective public health response at points of entry	2
Chemical Events	CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies.	2
	CE.2 Enabling environment is in place for management of chemical events	2
Radiation Emergencies	RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies.	2
	RE.2 Enabling environment is in place for management of radiation emergencies	2

Note on Scoring of technical areas of the JEE Tool:

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

The host country may suggest a score at this time or during the on-site consultation with the external team. The entire external evaluation, in particular the discussions around the score, the strengths, the areas which need strengthening, and the priority actions should be collaborative, with external evaluation team members and host country experts seeking agreement.

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

PREVENT

National legislation, policy and financing

Introduction

The IHR (2005) provide obligations and rights for States Parties. In some States Parties, implementation of the IHR (2005) may require new or modified legislation. Even if new or revised legislation may not be specifically required, States may still choose to revise some regulations or other instruments 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 which identify national structures and responsibilities as well as the allocation of adequate financial resources are also important.

Target

States Parties should have an adequate legal framework to support and enable the implementation of all 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.

Mozambique level of capabilities

An initial review of existing public health laws has contributed to this assessment, but a full comprehensive review across all sectors has not yet been completed. The constitution, while it provides for a right to health, is otherwise relatively non-specific on health issues. The country has several legal and policy instruments (albeit with inadequate monitoring and enforcement) to support the implementation of the IHR (2005), including The Southern African Development Community (SADC) Protocol on Health (2002) to coordinate regional efforts on epidemic preparedness, mapping prevention, control, and where possible, the eradication of communicable and non-communicable diseases (although there is no article specifically on health emergencies), the Instituto Nacional de Saude (National Institute of Health) Strategic Plan 2010-2014 to govern public health surveillance and response, waste management decrees, regulations on animal health, and regulations on points of entry and requirements for vaccination.

There is no comprehensive, well-coordinated legal framework to address all issues relevant to the IHR (2005), and therefore, developing a public health law to address the remaining gaps is a priority. However, while no laws specifically address the IHR (2005), none appear to conflict with or prevent their implementation. There are agreements with neighbouring countries on cross border movements of people. Even where these agreements are lacking, there is usually cooperation with neighbouring countries during emergency events. Similarly, inter-ministerial cooperation during emergencies tends to be through informal arrangements rather than formal agreements. Moreover, the Ministry of Health does not have specific financing to enforce existing regulations, and in particular with respect to cross-border health issues, the ministry often relies on other ministries to support the implementation and enforcement.

Recommendations for priority actions

- Complete comprehensive review of existing national legislation, across sectors, in line with One Health.
- Complete the development and drafting of a public health law.
- Strengthen communication and advocacy with stakeholders regarding the necessity for the new public health law; the positive impacts it will have on public health; and at the appropriate time, how it will be implemented with stakeholders.
- Review and strengthen enforcement of existing public health laws.

Indicators and scores

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

There is evidence of relevant laws and policies in various sectors to support implementation of the IHR, although the implementation of these regulations and policies is often limited. Some elements of this indicator score 4 for Mozambique, but an overall score of 2 better reflects the current status and the work that needs to be done.

Strengths/best practices

- The constitution of the Republic of Mozambique specifies a right to health; the country is trying to improve epidemic preparedness through ratifying the SADC Protocol on Health and developing the INS strategic plan 2010-2014, which includes a strategy for public health surveillance, investigation and control of risks and harm to public health. Since 2006, it has also had a Contingency Plan for Preparedness and Response to Pandemic Avian Influenza, and regulations on biomedical waste management.
- The municipal legislation, Resolution No. 86 / AM / 2008.

Areas that need strengthening/challenges

- Assessment of national public health laws and regulations across all relevant ministries.
- Better monitoring, enforcement, and implementation of existing laws and regulations.

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

- The National Institute of Health runs two macro-projects to support surveillance and response that can support adjustments of legislation and policies:
  - Structuring a unit for early review of the information generated by national surveillance system.
  - Research into, and control of, outbreaks and health emergencies.

Areas that need strengthening/challenges

- The implementation of existing policies is often poor, due to financial or resource constraints.

IHR coordination, communication and advocacy

Introduction

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

Target

The IHR 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.

Mozambique level of capabilities

In 2008 a multi-sector committee was established in Mozambique to assess IHR (2005) core capacities for implementation, and an action plan for implementation was developed. A multi-sector committee coordinates action in the event of a public health emergency. This is not a formal arrangement between stakeholders, however, and although the system has worked well in previous emergencies, there is a need to formalize the multi-sector collaboration and establish better mechanisms of data and information sharing between sectors on a routine basis, before, during and after a public health event.

Recommendations for priority actions

- Strengthen coordination between sectors, possibly through joint preparedness planning. Formalize multi-sector collaboration between all relevant stakeholders with clear terms of reference, roles and responsibilities, and regular meetings.
- Formalize and establish mechanisms for regular data-sharing and information exchange between relevant ministries, regarding priority diseases and public health conditions.
- Develop standard operating procedures (SOP) for communication and reporting between the National IHR (2005) Focal Point and relevant stakeholders.
- Formalize the multi-sector group at a technical level to develop SOPs for joint planning, including response to outbreaks and other public health emergencies, as well as monitoring and evaluation.

Indicators and Scores

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

Coordination mechanisms between relevant ministries are in place. National SOPs or equivalent exist for the coordination between the National IHR (2005) Focal Point and relevant sectors.

Strengths/best practices

- The National IHR (2005) Focal Point has been established, and there is a plan to restructure the IHR cabinet to improve its effectiveness.

- A multi-sector committee was established in 2008 to support IHR (2005) implementation, which resulted in an action plan.
- During a public health event there is generally good coordination among relevant sectors.
- At provincial and district levels, there are regular meetings between relevant stakeholders.

Areas that need strengthening/challenges

- Additional advocacy and planning between sectors is needed, in recognition of IHR (2005) implementation as a national cross-sectoral responsibility.
- Strengthen coordination between relevant ministries on events that constitute public health emergencies of national or international concern, with clear terms of reference and identified roles and responsibilities.
- Review and strengthen functional mechanisms for inter-sectoral collaboration between animal and human health surveillance units.
- Develop SOPs and guidelines for coordination between the National IHR (2005) Focal Point and other relevant sectors.
- Assess the effectiveness of the functioning of the National IHR (2005) Focal Point.

Coordination:

- Complete the restructuring process for the development of an IHR cabinet with clear mechanisms of communication.
- Complete a memorandum of understanding (MoU) between relevant sectors (Ministry of Health, customs, immigration, transportation, and communications) with clear roles and responsibilities for all stakeholders.
- Develop and implement mechanisms of national monitoring and evaluation of IHR (2005) related activities.

Communication:

- Develop procedures and SOPs (including communication mechanisms and protocols) for communication regarding the IHR (2005) with WHO and stakeholders.

Antimicrobial resistance

Introduction

Bacteria and other microbes evolve in response to their environment and inevitably develop mechanisms to resist being killed by antimicrobial agents. For many decades, the problem was manageable as the growth of resistance was slow and the pharmaceutical industry continued to create new antibiotics. Over the past decade, however, this problem has become a crisis. The evolution of antimicrobial resistance (AMR) is occurring at an alarming rate and is outpacing the development of new countermeasures capable of thwarting infections in humans. This situation threatens patient care, economic growth, public health, agriculture, economic security, and national security.

Target

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

Mozambique level of capabilities

Mozambique does not yet have a comprehensive national plan for controlling antimicrobial resistance (AMR) that specifically addresses the detection and reporting of priority pathogens and encourages antimicrobial stewardship. However, there are several non-integrated, disease-specific initiatives that have been implemented. Key partnerships include the Global Antibiotic Resistance Partnership (GARP), and other WHO-supported initiatives. There are several laboratories that are able to detect resistant bacteria, both at the national reference laboratories at the National Institute of Health, as well as some hospital laboratories at the central and provincial level, including the research centre in Manhiça District. All of them are able to detect and report on antimicrobial resistance using the Kirby Bauer method and some can also perform molecular assays. There are more than 40 laboratories that are able to detect TB drug resistance. The antimicrobial resistance detection capacity in animals is concentrated at the Central Veterinary Laboratory. The National Institute of Health (INS) has established sentinel surveillance sites for detecting antimicrobial resistance at central and some provincial hospitals. A draft national antimicrobial resistance surveillance plan is also under development. There are approximately 300 health facilities (55 hospitals and 245 health centres) that are conducting at least one basic component of the national Healthcare Associated Infections (HCAI) control program. Areas of future need include joint policy development between the human and animal health sectors in line with a One Health approach, which also addresses antimicrobial resistance stewardship across sectors.

Recommendations for priority actions

- Develop a national comprehensive action plan on antimicrobial resistance that covers both human and animal health sectors, and that is in line with the Antimicrobial Resistance Global Action Plan, with specific focus on the following tasks:

- Develop a Memorandum of Understanding (MoU) between the Ministries of Health and Agriculture to harmonize antimicrobial resistance activities in the human and animal health sectors, including data sharing and antibiotic stewardship practices;
- Reinforce monitoring and inspection functions for controlling inappropriate antibiotic use. Coordinated efforts are needed from different players including local government, the private sector and civil society.
- More aggressive interventions are urgently needed regarding monitoring and regulation on use of antibiotics in veterinary health and food production sectors.
- Strengthen the laboratory capacity for antibiotic sensitivity testing using recognized standards.

- Ensure that current efforts on antimicrobial resistance are integrated and harmonized under the leadership of the Ministry of Health including the implementation of prevention and control of healthcare-associated infection programmes in all facilities.
- Increase funding and technical assistance for antimicrobial resistance research and surveillance to generate data on the true burden and epidemiology of antimicrobial resistance in Mozambique.

Indicators and scores

P.3.1. Antimicrobial resistance detection – Score: 1

Mozambique does not have a national strategic plan for detection and reporting of antimicrobial resistance pathogens, however, there are specific capacities in the TB programme and experience in the overall laboratory system for detecting antimicrobial resistance in priority pathogens – there is a formally approved plan for detection of TB drug resistance with a well designated laboratory network.

Strengths/best practices

- The National Institute of Health operates National Reference Laboratories for several priority pathogens.
- The National Microbiology Reference Laboratory is able to detect antimicrobial resistance in bacterial meningitis and enteric disease pathogens including cholera.
- The National TB Reference Laboratory is able to perform first- and second-line drug sensitivity testing, and line probe assay. The Regional TB Reference Laboratories located in Beira and Nampula perform first-line testing. In total, 41 health facilities throughout the country use Gene Xpert.
- The National Malaria Reference Laboratory is testing malaria drug resistance through a study on therapeutic efficacy using the WHO protocol. Capacity for molecular detection of malarial drug resistance is being developed.

Areas that need strengthening/challenges

- The country needs to expand capacity for appropriate testing of bacterial antimicrobial resistance at all provincial hospital laboratories and also promote the use of both dilution agar and E-test methods specifically at reference and central hospital laboratories.
- Reference laboratories should be supported to sustain molecular antimicrobial resistance testing where necessary.
- Regular technical assistance from the National Institute of Health should be maintained, and financial support is needed for adequate equipment and required supplies and reagents.
- Human and veterinary laboratories should jointly plan the antimicrobial resistance laboratory agenda.

P.3.2. Surveillance of infections caused by antimicrobial resistance pathogens – Score: 2

Although a draft national antimicrobial resistance surveillance plan is still under development, several activities are ongoing; there are designated sentinel surveillance sites for meningitis and enteric diseases (including cholera) with a well implemented referral system of the samples. There is also a passive surveillance for TB resistance. The surveillance sentinel sites do not cover animal testing, however, therefore increased communication is needed between human and animal sectors.

Strengths/best practices

- The National Institute of Health has a mandate to conduct national surveillance for priority diseases in Mozambique, including antimicrobial resistance.
- A draft of national antimicrobial resistance guidelines has been developed.
- Passive surveillance for TB drug resistance is conducted appropriately.
- A national sentinel surveillance system exists for reporting on antimicrobial resistance to MoH, on meningitis and enteric diseases, as well as TB.
- Other sentinel surveillance systems are expanding to integrate detection of antimicrobial resistance.
- A periodic census of the animal population is conducted, which may facilitate future antimicrobial resistance surveillance efforts.

Areas that need strengthening/challenges

- Technical assistance is needed in finalising the national antimicrobial resistance guidelines.
- National surveillance is needed for antimicrobial resistance in the animal health sector and a national veterinary medicines control or authorization system should be established.
- Financial support and capacity building is needed for human and veterinary laboratories to implement the antimicrobial resistance surveillance programme in line with the Global Antimicrobial Resistance Action Plan.

P.3.3. Healthcare associated infection (HCAI) prevention and control programs – Score: 3

Strengths/best practices

- Since 2014, guidelines for prevention and control of HCAI are being implemented.
- There are 300 health facilities (55 hospitals and 245 health centres) conducting at least one basic component of the HCAI national control programme.
- HCAI special components are also implemented in some facilities, such as prevention of infection related to the use of intra-vascular catheters; prevention of urinary infections related to the use of civets; prevention of health care associated pneumonia, and prevention of surgical wound infections.

Areas that need strengthening/challenges

- The number of health facilities implementing basic components of the HCAI control programme should be increased and targeted at 100%.
- The number of health facilities implementing special components of the HCAI should also be increased.

P.3.4. Antimicrobial stewardship activities – Score: 1

Strengths/best practices

- Maputo Central Hospital is currently setting up an antibiotic stewardship programme at the hospital.

- Drug laws regulate prescriptions and sales of antibiotics to people.
- The National Drug Formulary guides health professionals on prescribing all medicines.

Areas that need strengthening/challenges

- Inconsistent and weak implementation and enforcement of existing drug law. For instance, private pharmacies frequently dispense antibiotics without a medical prescription, and antibiotics are available in the marketplace.
- As a result of weak implementation, self-medication is common.
- Laws regulating use of drugs in animal health are inadequate.
- Antibiotics are used in food production for growth promotion purposes, mainly in chickens. Further policy and guidelines are needed for antibiotic stewardship in the animal health sector.

Zoonotic Disease

Introduction

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

Target

Adopt measureable behaviours, policies and practices that minimize the transmission of zoonotic diseases from animals into human populations.

Mozambique level of capabilities

Since the 1970's, several zoonotic diseases have been part of the list of diseases for mandatory notification. In human health, these include tuberculosis, rabies, and plague where weekly reporting is mandatory. In animal health, the diseases are tuberculosis, rabies, brucellosis, and cysticercosis where reporting is on a monthly basis. A One Health approach for disease prevention, control, and response occurs mostly on an ad-hoc basis whenever there is a serious health threat posed by zoonotic disease. There is no One Health policy, plan, or Memorandum of Understanding (MoU) in place, but pilot initiatives (surveillance and research) are underway. There is also no joint task force or committee for systematic coordination of prevention, control, and response for priority zoonotic disease. This is exacerbated by inadequate communication and collaboration between the human and animal health services.

In animal health, under-reporting of zoonosis in the country represents a serious concern as veterinary and human surveillance systems are weak and mostly passive due to the involvement of slaughterhouses and large-scale farmers. Low levels of awareness on zoonotic threats at programmatic and community levels exacerbates the under-reporting. There are few veterinarians in the public sector (138 in the entire country) serving the community.

Irregular public health interventions and policies to control zoonosis in humans and animals is a constraint in Mozambique. Slaughtering livestock at community level is still a very common practice. The assessment of zoonotic threats is poorly done. Estimates of animal population are conducted regularly at district level while a nation-wide census is conducted irregularly.

Recommendations for priority actions

- Develop a One Health strategy for joint operations and coordination among the different key sectors of animal, human and wildlife health.
- Establish a National Surveillance Strategy framework for data-sharing among the key sectors.
- Include animal or wildlife health professionals in the Field Epidemiology and Laboratory Training Programme (FELTP) that currently only trains human health personnel.

Indicators and scores

P.4.1. Surveillance systems in place for priority zoonotic diseases or pathogens – Score: 3

Strengths/best practices

Routine surveillance systems for five or more zoonotic diseases are in place, both for humans and for animals, e.g. rabies.

- Weekly, monthly, and annual epidemiological bulletins report on diseases of mandatory notification. The focal point for zoonotic diseases within National Directorate for Public Health (DNSP) was appointed in 2016.
- First joint meeting of Ministries of Health and Agriculture was held shortly before the JEE assessment, where the establishment of a national One Health committee was discussed.
- The Ministry of Agriculture has a laboratory for diagnosis of zoonotic diseases in animals, although with limited capacity. Current testing focuses on five diseases: rabies, brucellosis, Rift Valley Fever, tuberculosis, and influenza.
- Implementation of One Health sentinel surveillance for zoonotic disease has been piloted in Caia District since 2014.
- The Regulation of Animal Health decree nº26/2009, establishes standards for epidemiologic surveillance and control of animal diseases in Mozambique.
- Diagnostic capacity for an increasing number of zoonotic diseases, e.g. trypanosomiasis, Rift Valley Fever, leptospirosis and influenza, is ongoing at the National Institute of Health.

Areas that need strengthening/challenges

- List of zoonotic diseases being reported through mandatory notification system should increase.
- A framework is needed for animal and human surveillance of zoonotic diseases; this should include structure, protocols, policies and legislation, and standard operating procedures.
- Improved collaboration is needed between human and animal health sectors, especially on data sharing.
- Increased laboratory capacity for diagnosis of zoonotic diseases is needed, both for human and animal health.

P.4.2. Veterinary or animal health workforce – Score: 2

Strengths/best practices

- University Eduardo Mondlane (UEM) has a five-year veterinary medicine course; at national level there are three livestock institutes. There are several masters courses on public health in Mozambique.
- FELTP has been implemented In Mozambique since 2010, with a total of 24 graduates. Though zoonotic disease outbreaks such as rabies have been investigated, no veterinarians have been enrolled in the programme so far.
- A module of zoonosis was included in the medical residency curriculum for public health specialists.

Areas that need strengthening/challenges

- Additional training is needed on zoonotic diseases for human and animal health professionals at graduate and undergraduate levels and on-the-job training, i.e. continued professional education.
- Recruitment of veterinarians to improve the shortage of veterinarians at provincial and district levels.
- Enrolment of veterinarians in FELTP course.

P.4.3. Mechanisms for responding to zoonoses and potential zoonoses are established and functional – Score: 1

Strengths/best practices

- Mozambique has an approved strategy for inter-institutional and coordinated response for rabies, for the period 2010-2015.
- Capacity for responding to outbreaks and emergences has increased significantly over the last few years.

Areas that need strengthening/challenges

- A data-sharing strategy for zoonotic diseases between sectors should be established as a matter of priority.
- Establishment of One Health plan/strategy and task force that should be done as soon as possible.
- Limited capacity exists for outbreak investigation and response for zoonotic diseases in both human and animal health sector.
- Protocols and SOPs are needed for outbreak investigation and response for zoonotic diseases that are lacking.

Food Safety

Introduction

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

Target

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

Mozambique level of capabilities

The key ministries in the management of food safety issues are health, agriculture, industry and commerce, and fisheries. The government is in the process of strengthening and approving a multi-sector strategy through stakeholders. Thus, there will be several opportunities for the authorities to implement appropriate policies, strategies, rules and regulations, in addition to those already in place. There are formal and informal mechanisms for information exchange regarding food-related events, however, information exchange is sometimes suboptimal and continues to be a challenge.

The country doesn't have a specific standard for food safety. However, there are different standards that have been referenced for specific topics, sometimes in the context of food security:

- **Animal health** - there is a standard regulation for animal safety by the decree 26/2009 (FOO-07);
- **Product inspection** - there are standards for meat inspection, eggs quality (FOO-11), slaughterhouse regulation, quality of bottled water (FOO-08), and fish processing (FOO-10);
- **Access to adequate food** - national standards – ESAN II (Security Strategy for food and nutrition) –(FOO-01), and internationally Mozambique is also member of ESAN-CPLP, (FOO-02) since 2011;
- Food and water tests, there are standard methods, according to reference manuals, books and food collection standards (FOO-13, 14, 15 and 16).

The country has several food safety events such as pesticide poisoning and maize flour contamination. Many foods are prepared and served in markets or traditional settings in which there is limited or no food inspection or recognized standards for food safety and hygiene. The food storage and refrigeration capacity in such settings is often inadequate, thus increasing the risk of microbial growth in foods that are not adequately stored. However, improvements are being made in this area, as evidenced by the newly established Maputo fish market, with vastly improved food storage and sanitary conditions.

Nevertheless, there is poor detection or recording of such events. Often, surveillance is not sensitive or timely enough to facilitate a rapid and thorough investigation or public health interventions to limit further illness.

The main laboratory that can undertake such testing is the National Laboratory for Food and Water Hygiene that performs routine microbiologic and chemical testing on food and water samples submitted for testing. The laboratory also tests foods for micronutrient supplementation such as iron and vitamin A, and can perform quality control on samples and products submitted by local industry. The laboratory has limited capacity to detect specific chemical agents in food or water, however. Although the lab possess equipment for modern methods in gas chromatography and mass spectrometry, there is additional need for software and staff training to operate the equipment. The police forensic laboratory is also reportedly developing capacity for gas chromatography.

Recommendations for priority actions

- Establish mechanisms to better ascertain food-related events of public health importance, and enhance response capacities for such events. This could involve a registry of food or water-borne outbreaks, reported by hospitals or health facilities under the planned public health law.
- Improve inter-sector collaboration to better define the roles and responsibilities of various entities in the investigation and response to food-related events. This should involve relevant components of MoH, as well as Environmental Health, Agriculture, food inspection services, and law enforcement. Roles and responsibilities should be clearly defined through elaboration of MoUs, SOPs, and other relevant documents.
- Improve laboratory capacity for food and water testing at the National Laboratory for Food and Water Hygiene, specifically by:
    - Fully implementing modern methods for detection of chemical agents in food and water though gas chromatography, mass spectrometry, and other recognized methods;
    - Develop cost recovery schemes to better finance the laboratory's work by implementing a sliding fee scale that reflects market costs for testing specimens from industry for quality control purposes.
- Enhance the already existing epidemiologic surveillance system on food safety by improving on the laboratory capacity and surveillance tools.
- Fast-track the development of a multi-sectorial food safety policy and strategy to mitigate foodborne disease outbreaks.
- Enhance human capacity to diagnose foodborne diseases both through improved surveillance and laboratory diagnosis.

Indicators and scores

P.5.1. Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination – Score: 3

Strengths/ Best Practices

- Response to food poisoning and foodborne disease outbreaks lead by the National Institute of Health.
- Implementation of the Field Epidemiology & Laboratory Training Programme to support outbreak investigation.
- Engagement of civil society through existing consumers association.
- Development of a multi-sector strategy for risk management.
- Implementation of a national control management for food safety.

Areas that need strengthening/challenges

- Registration system of events related to food safety is weak or non-existent. Effective registration system has not been implemented in the country for events related to food safety.
- Need to improve multi-sectoral collaboration and information exchange during suspected foodborne disease outbreak investigations between the relevant stakeholders.
- Needed improvements in communication mechanism between food safety stakeholders in the country to mitigate risk before an event.
- Need to strengthen the involvement of the civil society.
- Need for improved laboratory capacity to detect microbial and chemical foodborne contamination.
- Need for sustainable funding mechanisms to support work of the National Laboratory for Food and Water Hygiene.

Biosafety and Biosecurity

Introduction

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

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

Target

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

Mozambique level of capabilities

Mozambique has a biological risk management system, laws related to biosafety and biosecurity issues, such as biomedical waste, animal health, and genetically modified organisms. Mozambique also has a National Biosafety Authority, and national guidelines for biosafety. However, a whole-of-government, national biosafety and biosecurity system is not fully in place - national biosafety and biosecurity legislation, laboratory licensing, and pathogen control measures are not completely in place. In some institutions, however, 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 toxins. The country should also to ensure sustainable linkages with the African Biological Safety Association (AfSBA), and other international and regional organizations and initiatives concerned with biosafety and biosecurity such as the International Federation of Biosafety Associations (IFBA), and the Biosecurity Engagement Program (BEP).

Recommendations for priority actions

- Ensure operationalization of the inter-institutional biosafety group (Grupo Inter-Institucional sobre Bio-Seguranca (GIIBS)) and the Institutional Biosafety Committee (IBC) at national and sub-national levels.
- Develop specific and consistent biosafety and biosecurity policy and other documents including:
  1. Laboratory strategic plan in line with a One Health approach;
  2. An inventory of existing dangerous biological pathogens and toxins present in Mozambique;

3. Guidelines and procedures for the handling, management and storage of highly infectious materials;

4. Legislation, guidelines, and manuals on biosecurity and biosafety.

- Promote the development of a national curriculum and training programs in biosafety and biosecurity for professional in-service training and at academic institutions.

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

- Legislation and policy on genetically modified organisms (GMOs), animal health, and management of bio-medical waste, and existence of the Institutional Biosafety Committee.
- Guidelines have been developed on safety, hygiene and health at work for the national health system, and for the control of health-care associated infections.
- Manuals have been developed for prevention and post-exposure prophylaxis for occupational HIV exposure, and for the National Institute of Health biosafety laboratory.
- Institutional Biosafety Regulation at National Institute of Health and for the Central Veterinary Laboratory (DCA/IIAM) have been developed.

Areas that need strengthening/challenges

- A whole-of-government, national biosafety and biosecurity system is not fully in place to ensure that especially dangerous biological pathogens and toxins are identified, held, secured, and monitored in a minimal number of facilities according to best practices
- Despite the establishment of the Inter-Institutional Biosafety Group (GIIBS), there is a need to further operationalize at national, provincial and local levels.
- Development of additional specific biosecurity and biosafety legislation is needed, as well as the monitoring and enforcement of existent laws regarding biosafety of GMOs.
- National guidelines, SOPs, and manuals on biosafety and biosecurity should also be developed or updated and implemented.
- A national inventory of dangerous biological pathogens and toxins should be conducted.
- There is a need to identify and further consolidate a small number of facilities with the capacity to hold, store, and manage dangerous biological pathogens and toxins.
- Maintenance of a stockpile of biosafety personal protection equipment and measures is needed.
- Adequate and consistent financial resources are required for essential biosafety and biosecurity activities.

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

Strengths/best practices

- There is some institutional capability to provide biosafety and biosecurity training.
- Biosafety and biosecurity topics are incorporated into existing undergraduate and graduate training programmes such as FELTP.

Areas that need strengthening/challenges

- National curriculum on biosafety and biosecurity training in academic and professional institutions, as well as the development and implementation of train-the-trainer programmes in biosafety and biosecurity, should be established.
- A national needs assessment for biosecurity and biosafety training should be conducted to facilitate adequate planning to strengthen capacity. The training of all technicians in biosecurity issues, in all facilities housing or working with dangerous pathogens is needed.
- Availability of consistent funds to implement biosafety and biosecurity training should be prioritized.
- Maintain adequate documentation for all staff regarding previous training in biosafety and biosecurity, to ensure that necessary refresher training is provided in a timely manner for staff working with dangerous pathogens.

Immunization

Introduction

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

Target

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

Mozambique level of capabilities

Mozambique's expanded programme on immunization (EPI) has been in place since 1979 and has been improved over time to provide vaccination services at all levels and reaching the majority of the target population. Immunization is voluntary and free-of-charge. The EPI is operated through health facilities and outreach activities of mobile health workers. Much of the population lives in rural areas, and many live far from health facilities, and thus vaccination services are not equally accessible.

There is generally high acceptance of vaccines and high demand for immunization services among the general population. Information, education and communications and social mobilization activities use different communications tools, messages, and media to promote immunization and to encourage acceptance of new vaccines.

The comprehensive multi-year plan (2015–2019) for immunization is aligned with the WHO Global Vaccination Action Plan and is updated annually, however, with the exception of rabies, it does not take into account animal vaccination for zoonotic diseases affecting humans.

Since 2015, the routine vaccination schedule covers tuberculosis, polio (oral and inactivated), diphtheria, pertussis, tetanus, measles, pneumococcal pneumonia, rotavirus, haemophilus influenza type b, and hepatitis B. Plans are underway to add additional immunizations, such as the human papilloma virus (HPV) vaccination, into the routine schedule. However, the cost of implementing HPV vaccination and lack of dedicated funding are a potential barrier. Other vaccines not part of the routine immunization schedule, but that have been used in targeted disease control efforts or on a sporadic basis, include yellow fever, rabies, meningitis and cholera. However, timely procurement and distribution of these vaccines is often challenging.

The National Institute for Statistics (Institutio Nacional de Estatistica (INE)) is a strong partner in providing population denominators and target group population estimates to ensure the fidelity and accuracy of vaccination coverage estimates. However, ensuring quality of vaccination data is still a significant challenge, particularly in terms of data reliability, accuracy in reporting (i.e. not over- or under-reporting), timeliness and completeness of reporting, and regular ongoing data analysis.

The national cold chain plan for 2014–2018 is an expand plan to accommodate new vaccines into the national routine schedule (rotavirus, measles second dose, and HPV), the expansion of fixed vaccination posts, and replacement of old and depleted cold chain equipment. The plan also includes the creation

of two regional vaccine warehouses, the provision of refrigerated trucks for vaccine distribution, and 3 mobile cold chain maintenance units at sub-national level. In addition, temperature monitoring devices are to be installed at all levels of the system, cold chain spare parts, and training of cold chain maintenance technicians at provincial level and cold chain maintenance assistants at district level. This should optimize vaccine procurement and distribution and minimizing vaccine stock-outs.

Recommendations for priority actions

- Develop a comprehensive and integrated strategy to improve equity of access through:
  - Full implementation of the Reaching Every Community and Child (REC) programme;
  - Reducing geographic and other barriers;
  - Increasing vaccination coverage by geographical area;
  - Improving district-level coordination and integration of transportation resources;
  - Addressing current staffing shortages for EPI program;
  - Standardize staff incentive pay for outreach activities;
  - Reduce waiting time for immunization services at the health facility level;
  - Strengthen partnerships for immunization (e.g. the Interagency Committee for Immunization) and integration of EPI issues into other prevention programmes; and
  - Increase support at the district level for the process of micro planning.
- Strengthen data quality management addressing:
  - Use accurate denominators when calculating coverage rates based on administrative data;
  - Improve accuracy of target population estimates;
  - Improve accuracy of data collection regarding number or individuals vaccinated per antigen;
  - Improve use of the Data Quality System (DQS) tool;
  - Increase supportive supervision at all levels.
- Further improvement of the cold chain management and maintenance at all levels and optimizing the supply and distribution chain.
- More sustainable funding to ensure scaled-up implementation of new vaccines.

Indicators and scores

P.7.1. Vaccine coverage (measles) as part of national programme – Score: 3

Strengths/best practices

- Strong partnerships on EPI activities within the country and among stakeholders.
- Existence of functional and active technical working groups at central level serves as a good platform for discussion and decision-making.
- Committed EPI health staff at all levels.
- Well-established system of vaccine delivery including outreach activities to ensure vaccination delivery in remote areas.
- Positive perception and high acceptability of vaccination among local communities.
- Intense social mobilization during vaccination campaigns with the active participation of community members and leaders.
- Implementation of National Mother and Child Health Weeks offering integrated maternal-child health services, including immunization.

- The introduction of the Data Quality System (DQS) tool, which measures qualitative and quantitative data, also used for monitoring.

Areas that need strengthening/challenges

- Improved strategies for reaching remote areas and disadvantaged populations.
- Deployment of trained staff to achieve and sustain high immunization coverage.
- Better estimation of vaccination coverage and encouraging best practices.
- Better management and supervision of immunization data collection, including surveillance data.
- Systematic analysis at district level regarding vaccination coverage, as well as cases and deaths due to vaccine-preventable diseases.
- Better integration between the EPI health information system and disease surveillance systems.
- Training of health staff on the use of DQS self-assessment tool.
- Improved coordination, collaboration, and information sharing among EPI program, surveillance, and laboratory staff at all levels.

P.7.2. National vaccine access and delivery – Score: 4

Strengths/best practices

- The Vaccine Management Assessment (VMA) is performed regularly by national staff, and the reports and recommendations are available to guide corrective actions.
- Trained logisticians are in all 11 provinces, and at district level, a logistics training plan is ready for implementation.
- At national level, vaccine management is sufficiently electronic, and at provincial level, tools have been made available for the management of vaccines.
- A plan to extend the vaccine management tools to districts is being implemented.
- The national immunization technical advisory group has been created.
- National cold chain inventories are undertaken every three years, and based on the assessment, equipment is allocated in districts and health facilities. The inventory was updated in 2014 and in 2015 new equipment has been allocated to all districts.
- Currently more than 80% of health facilities have functional cold chain equipment.

Areas that need strengthening/challenges

- Human resource capacity and training.
- Observance of existing SOPs to address the gaps in vaccine management-related issues.
- Improvements in the stock management system.
- Further improvements in cold chain management and maintenance.
- Health facility level practices on vaccine management.
- Improvements in storage capacity at central and provincial levels, and in some districts and health facilities to accommodate vaccine supplies.
- Funding and procurement of new vaccines.

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.

Mozambique level of capabilities

Mozambique has an integrated network of laboratories that fall under various directorates within the Ministry of Health. Clinical laboratory services are integrated into a tiered National Health Service that consists of central, provincial, and district hospitals and health centres. There are veterinary laboratories in all provinces. The country does not yet have a single national public health laboratory facility which integrates all the departments. The country's ten reference laboratories are under the National Institute of Health, mostly the capital Maputo. A new National Public Health Reference Laboratory is under construction and it will serve as a state of the art facility to house the country's National Reference Laboratories, surveillance units, and public health research activities in one facility. The Central Veterinary Laboratory requires some rehabilitation, mainly in virology and bacteriology units, to better serve its reference functions.

The national laboratory testing capacity is adequate for the detection of common human and animal disease outbreaks. The human virus isolation laboratory should be operational once the new National Institute of Health facility is completed. The system for transport of specimens is adequate and mainly used for confirmation of outbreaks. The reference laboratories participate in international external quality assurance programmes in various pathogens and some are certified and/or accredited. The national external quality assurance programme is fully functional and covers some pathogens. Significant investments have been made to improve laboratory services, however, further capacity building is needed at provincial and district hospitals and health centres. Further collaboration between human and animal laboratories is also needed for crucial real-time bio-surveillance.

Recommendations for priority actions

- Ensure final approval and implementation of the national laboratory policy.
- Develop and implement laboratory strategic plan which will address Laboratory Quality Management System (LQMS); laboratory transport system; supplies and commodity management system; collaboration between veterinary and human health laboratories, and infrastructure development.

- Advocate for adequate resources for the implementation of a national strategic plan to improve laboratory systems and services in both the human and animal health sectors.

Indicators and scores

D.1.1. Laboratory testing for detection of priority diseases – Score: 3

Strengths/best practices

- The country has the capacity to confirm priority pathogens in human and animal health sectors in bacteriology and virology.
- There are a number of routine laboratory tests, such as TB smear microscopy, malaria rapid test, HIV serology, and microscopy for intestinal parasites, that are effectively implemented across the national laboratory network.
- Standardization of microbiology testing has improved with the development of a technical manual.
- SOPs have been developed for HIV serology and PCR, Xpert MTB/RIF assay, TB smear microscopy, and malaria tests, and have been rolled out nationally.
- Laboratory information systems are in place in the reference laboratories and ten clinical laboratories involved in laboratory information management.
- Reporting SMS printers are in use for HIV early infant diagnosis and TB.
- Plans are in place for expansion of public health reference laboratory capacity with the construction of a modern National Institute of Health laboratory.

Areas that need strengthening/challenges

- Harmonization of a laboratory plan should be conducted to cover all levels of the health system. Furthermore, the involvement of the veterinary laboratory in the development of the strategic plan is crucial to identify cross-cutting issues.
- There is significant lack of human resources. The country has a total of 1405 effective technicians across various categories to cover the 344 existing laboratories. In 86 laboratories, there is only one technician per laboratory, despite the high demand for routine laboratory services.
- The laboratory infrastructure still needs to be addressed; many remain under-resourced in areas such as electricity, water, physical environment, and equipment.
- There is still limited capacity for microbiology services, mainly at peripheral hospital and health centre laboratories. The provincial hospital laboratories do not have adequate capacity for general bacteriology to ensure isolation and identification of pathogens. Most health centre laboratories only conduct malaria and TB smear microscopy, HIV and malaria rapid-diagnostic tests (RDT), and urinalysis.
- The stock management systems and equipment maintenance plans are not optimal. Laboratories frequently experience stock-outs of reagents and consumables, and equipment breakdowns.
- There are few government resources for laboratory systems, and support comes mostly from external donors.

D.1.2. Specimen referral and transport system – Score: 3

Specimen referral and transport systems are notably stronger for large, vertically funded disease programs such as HIV, TB, and malaria.

Strengths/best practices

- Sample referral systems are documented for some reference services such as for tuberculosis, HIV early infant diagnosis, salmonella and influenza provided by the National Institute of Health.

- SOPs, manuals and procedures exist for National Institute of Health reference laboratories.
- Specimen referral systems are established and functional within each province, particularly for HIV and TB.

Areas that need strengthening/challenges

- The sample referral system needs to be strengthened to cover all levels of the health delivery system, and further integrated with veterinary systems for animal health.

D.1.3. Effective modern point of care and laboratory based diagnostics – Score: 2

There is minimal point of care (POC) capability in the laboratories in Mozambique, which is attributed to a lack of an overall strategy for POC diagnostics. Individual strategies do exist for some diseases such as HIV/AIDS, since it receives sufficient funding and attention.

Strengths/best practices

- Implementation of new technologies e.g. PIMA roll out for HIV diagnosis.
- New model for POC technology evaluation and implementation, starting with an evaluation at the reference laboratory followed by field testing, measurement of impact and development of a national strategy for phased national roll out.

Areas that need strengthening/challenges

- A country strategy needs to be developed to ensure POC and laboratory based diagnostics are adequately implemented.
- Capacity building needs to be prioritized to ensure that a tiered approach for specific diagnostic testing is implemented.

D.1.4. Laboratory Quality System – Score: 2

There is not yet a comprehensive system for determining conformity to laboratory quality assurance standards across the laboratory system as a whole. However, laboratory quality assurance systems are in place for vertically funded programs such as HIV and TB.

Strengths/best practices

- Creation and implementation of the National External Quality Assurance (EQA) program which covers several disciplines.
- Adoption of Strengthening Laboratory Management Toward Accreditation (SLMTA) and creation of National Quality Improvement and Accreditation Program.
- The EQA was first established in 2005 with one scheme and four participants. It has grown to 13 schemes and 441 participating sites.
- To implement this strategy the MOH created a national quality improvement and accreditation program responsible for the implementation of the management of the SLMTA program. Starting with six laboratories in 2011, the programme has since enrolled 25 laboratories and blood banks. One laboratory achieved ISO 15189 accreditation in 2014. A second laboratory is expected to receive accreditation before the end of 2016.
- Two laboratories have achieved international accreditation - the National Food and Water Laboratory and the National TB Reference Laboratory.

Areas that need strengthening/challenges

- Further expansion of quality assurance programmes to cover both public and private laboratories.
- Expansion of National EQA programme to cover other critical disciplines, and dedicated resources to sustain the programme.

Real-time surveillance

Introduction

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

Target

Strengthened foundational indicator- and event-based surveillance systems that are able to detect events of significance for public health, animal health and health security; improved communication and collaboration across sectors and between sub-national, national and international levels of authority regarding surveillance of events of public health significance; improved country and regional capacity to analyse and link data from and between strengthened, real-time surveillance systems, including interoperable, interconnected electronic reporting systems. This would 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.

Mozambique level of capabilities

In the public health sector, Mozambique has established two national surveillance sub-systems in 1985 based on routine surveillance of ten priority diseases (malaria, measles, meningitis, diarrhoea, dysentery, cholera, acute flaccid paralysis, rabies, plague, and neonatal tetanus) in the Weekly Epidemiological Bulletin (BES) and sentinel surveillance system of four syndromic diseases (febrile syndrome, respiratory syndrome, diarrheal syndrome, meningitis) in the Monthly Epidemiological Bulletin-Sentinel Post (BEM-PS). The BEM-PS is used primarily to augment the BES sub-system and answer specific epidemiological questions.

The Ministry of Health (MISAU) has required reporting of non-communicable diseases, including hypertension, cardiovascular diseases, diabetes, trauma, asthma, and cancer, to the sentinel system since 2005. But like any other sentinel surveillance system, the coverage of rural areas in Mozambique is very limited. However, this system is not using the WHO Integrated Disease Surveillance and Response (IDSR) strategy since it is poorly implemented in the country. Data are mainly reported through a paper based system at the health facility level and are entered into the aggregate reporting system Modulo Basico at the district and province level, and later sent to the national level for data analysis. Regular information is provided on a weekly basis from the central level down to the peripheral level. Health Management Information System (HMIS) is used for monthly reporting. A mobile phone-based syndromic surveillance system is being piloted since December 2015 in Maputo province, and there is a plan to transition the paper-based reporting to electronic reporting in the future through the extension of this mobile BES (mBES). The areas of event based surveillance, including community-based surveillance, are weak in the country; however an ad-hoc system exists and is able to capture some public health threats, including outbreaks.

In the animal health sector, an epidemiological surveillance system is in place and has been greatly improved. To date, six priority diseases are notifiable. Digital technology for notification was tested and successful, but was discontinued due to organizational and funding issues. Standardized forms exist and are made available for reporting up from the lowest level. Monthly bulletins are regularly developed and disseminated in and outside the country. There is limited resources and capacity to improve knowledge about the risk of the zoonotic diseases in the community. The country regularly reports to regional bodies.

These are Africa Union–Inter Africa Bureau on Animal Resources (i.e. AU-IBAR) and the Southern Africa Development Communities (i.e. SADC) and international bodies (World Organisation for Animal Health) respectively and informally to FAO, both at national and regional levels.

Recommendations for priority actions

- Reactivate the implementation of the WHO Integrated Disease Surveillance and Response (IDSR) strategy using the national technical guideline on IDSR that takes into account the IHR (2005), the One Health approach, and new initiatives such as electronic surveillance by prioritizing the following actions:
  - Conducting an in-depth assessment of the national surveillance system to identify the gaps;
  - Updating the list of priority diseases, taking into account the national context;
  - Ensuring that the Field Epidemiology & Laboratory Training Programme (FELTP) includes IDSR components.
- Establish an electronic health reporting system involving all relevant sectors and gradually transition from paper-based to full-time electronic reporting.
- Strengthen early warning and early detection systems, consistent with a One Health approach.

Indicators and scores

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

Indicator based surveillance is well established in Mozambique, however, event-based surveillance, including community based surveillance, for both human and animal health sectors are weak or absent.

Strengths/best practices

Public health sector

- The indicator-based surveillance system is in place with ten diseases reported weekly.
- A paper-based surveillance system exists for diseases of compulsory notification.
- Disease-specific case definitions are available at the health facility level.
- Aggregate weekly data reporting system data flow from facility to district to province to the central level and are analysed at the central level on a regular basis.
- Surveillance reports disseminated from central to lower level on a regular basis.
- Sentinel surveillance for major syndromes has been implemented.
- Health Management Information System is used for diseases reported monthly.
- Development of a comprehensive regular training package on disease surveillance for health professionals through in-service training, supportive supervisions, technical meetings, and the Field Epidemiology & Laboratory Training Programme (FELTP) is conducted.
- Improvement of commitment at provincial and facility level for sentinel surveillance.
- Improvement of institutionalization of sentinel surveillance.
- A system is in place to detect public health threats, albeit ad hoc.

Animal health sector

- Epidemiological surveillance system is in place and has been improved.
- Animal Health Resource Information System (ARIS) is used by the country, albeit some technical issues

exist that are being solved by the providers, and data has been shared using Excel format, as the on-line format currently has a lot of challenges.

- There is another Animal Health Information System being used for reporting to OIE, i.e. World Animal Health Information System.
- Standardized forms are available for reporting.
- Monthly bulletins are developed and disseminated.

Areas that need strengthening/challenges

Public health sector

- Integrated Disease Surveillance and Response (IDSR) is poorly implemented.
- Sensitivity of the current national surveillance system is weak with significant under-reporting, poor quality of collected data, and very limited coverage of rural areas. Furthermore the list of mandatory disease has not been updated since 1979.
- Reporting from the private sector is ad-hoc and quite limited.
- Event based surveillance is not in place. Log book to record unusual events or rumours of outbreaks does not exist at health facilities, and there is a lack of capacity for early analysis of surveillance data at district level for action.
- No mechanisms in place for community based surveillance.
- Parallel reporting systems not yet integrated into the Modulo Basico.
- Mobile phone technology for reporting is in pilot phase in Maputo province, and should be expanded, based on finding from pilot phase.

Animal health sector

- Lack of risk communication on zoonotic disease in particular.
- Animal health surveillance at community level is weak because of the inadequate capacity of para-veterinarians at the lower levels, especially the districts.
- Lack of specific training provided to veterinary professionals in FELTP at Masters Level, as they are currently not included in the programme.
- Limited resources for surveillance allocated for animal health sector.
- Limited capacity to improve knowledge about zoonotic disease risk in the community.

D.2.2. Inter-operable, interconnected, electronic real-time reporting system – Score: 2

Both human and animal health systems are functional but are not inter-operable, interconnected, nor electronic at this stage.

Strengths/best practices

Public health sector

- MISAU's HMIS database, called Modulo Basico enables seamless synchronization between the MHIN district database for epidemiological surveillance and Modulo Basico.
- Mozambique is currently transitioning its HMIS system to a DHIS2-based platform called SIS-MA.
- MoH is currently piloting a mobile phone–based syndromic surveillance system for mandatory disease surveillance since 2015.

Animal health sector

- Digital technology was tested and successful but later discontinued.

Areas that need strengthening/challenges

Public health sector

- Paper-based surveillance is predominant in the country. Paper-based reports with aggregate data from peripheral health units are entered into a computer database at district level, and then electronic aggregate reports are transmitted to the provincial level, aggregated there and then transmitted onward to Public Health Directorate at the National level at MISAU.
- Expansion of electronic BES (mBES).
- Absence of interconnection between disease notification for human health and animal health.
- Data sharing between human and animal health does not exist.
- Shortage of human resources to implement activities at all levels.

Animal health sector

- Discontinued use of the digital technology due to organizational and funding issues.

D.2.3. Analysis of surveillance data – Score: 3

Difficulties are noted in terms of analysis of surveillance data for both sectors due mainly to lack of qualified human resources and training

Strengths/ Best Practices

Public health sector

- National Health Observatory established in 2015 by MISAU.
- Electronic laboratory management systems exist in almost all provincial laboratories.
- Data from surveillance system of compulsory notification and sentinel surveillance are analysed regularly.

Animal health sector

- Analysis is done on monthly basis with some delays.

Areas that need strengthening/challenges

Public health sector

- Lack of IT experts at central level to analyse data on a routine basis due to difficulty to retain IT and statisticians within MISAU.
- Lack of skills at district level for data analysis: weak knowledge of epidemic thresholds of priority diseases to rapidly recognize and respond to an epidemic.
- Early analysis of surveillance data at lower levels is generally lacking.
- Centralized data warehouse for storage and analysis of data collected through electronic laboratory management system does not exist yet.
- National Health Observatory not yet fully functional.
- Incomplete data reporting.

Animal health sector

- Limited analysis on a routine basis.

D.2.4. Syndromic surveillance systems – Score: 3 for the human health sector; 2 for the animal health sector

Human health sector has implemented syndromic surveillance system for more than three diseases and is in more advanced phase compared to animal health sector. However, some of the syndromic surveillance in place should be strengthened due to limited coverage.

Strengths/best practices

Public health sector

- Laboratory based surveillance is mainly used, but syndromic surveillance system is in place through sentinel surveillance for cholera, acute febrile illness, Influenza, meningitis, and acute diarrhoea.

Animal health sector

- Most diagnosis at district and lower levels is based on clinical signs or syndromes.

Areas that need strengthening/challenges

Public health sector

- Limited coverage of the sentinel surveillance that needs to be expanded (e.g. influenza sentinel surveillance is only conducted in Maputo).
- Institutionalization of sentinel surveillance for clinical syndromes.
- Development of policies.

Animal health sector

- Limited syndromic surveillance.

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.

Mozambique level of capabilities

Mozambique has designated a national focal point for IHR (2005) who has undertaken IHR training through WHO courses in Kenya (2007) and Burkina Faso (2010), and has access to WHO's Event Information System. An OIE focal point has been designated and veterinary services reports to OIE through the World Animal Health Information System. A government focal point for OIE has been identified in the Department of Veterinary Services. Mozambique has established disease surveillance structures and systems for both public health and animal health. Annex 2 of the IHR is used as a decision-making instrument to decide whether a particular event fulfils criteria for notification.

Recommendations for priority actions

- Set up a more effective coordination mechanism between key sectors.
- Strengthen the reporting of public health events of international concern (PHEIC) to WHO and OIE using the existing framework.
- Prepare, conduct, and evaluate reporting structures and systems.

Indicators and scores

D.4.1. System for efficient reporting to WHO, FAO and OIE – Score: 3

Strengths/best practices

- IHR national focal point is operational, has been trained, and has been granted full responsibility for notifying WHO of public health events of international concern.
- OIE focal point has been designated and veterinary services reports to OIE using the World Animal Health Information System.
- Five ministries participate in the IHR activities: Ministry of Health/Ministry of Home Affairs/Ministry of Foreign Affairs/Ministry of Agriculture and Food Security/Ministry of Economics and Finance (Customs Service)/ Defence Ministry.

Areas that need strengthening/challenges

- Weak coordination among relevant sectors.
- Reporting mechanisms are not systematically followed by relevant sectors.
- There are inadequate human resources.
- Additional training of health professionals is needed regarding reporting requirements under the IHR (2005).
- Mechanisms for coordination and communication between relevant sectors need strengthening.

D.4.2. Reporting network and protocols in country – Score: 2

Strengths/best practices

- Network of public health authorities within the SADC facilitates exchange of information and ensure efficient coordination of the response at the regional level.
- A table-top simulation in 2015 assessed the country's preparedness for the Ebola epidemic and adjust the response plan accordingly.
- Mechanisms of communication from the district to central level through weekly reporting (BES).

Areas that need strengthening/challenges

- Specific reporting requirements are not clearly established in the Protocol on Health in the Southern African Development Community.
- There is no specific SOPs for reporting on a potential PHEIC to WHO.

Workforce development

Introduction

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

Target

States 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).

Mozambique level of capabilities

The Mozambique National Health Service had 44,655 employees at the end of 2014; there were 6.8 doctors (including foreign doctors) per 100,000 inhabitants. There are multi-disciplinary teams at the central level which are formed for outbreak investigations or emergency situations, in an ad hoc fashion to provide support and response to outbreak investigation. These are located at the central level and are made up of Ministry of Health staff from different sectors of the Ministry, including National Directorate of Public Health, Medical Assistance, and the National Institute of Health. The Field Epidemiology and Laboratory Training Program (FELTP) graduates and residents are often deployed to respond to outbreaks occurring within the country.

The country established the FELTP in 2010, to offer an advanced field epidemiology course coordinated by the National Institute of Health in partnership with University Eduardo Mondlane Faculty of Medicine, with technical and financial support from the US Centers for Disease Prevention and Control (CDC). The programme also offers a short course in basic epidemiology which is typically targeted to district-level health professionals, although it does not yet fully provide a tiered approach to epidemiology training. There are plans to initiate an intermediate level epidemiology training course, however, funding is uncertain. So far, 24 residents have graduated from the programme and 12 are currently completing the course. The graduates of FELTP serve in different capacities at both the central and provincial level providing technical expertise in the Ministry of Health. However, the enrolment is still below the target due to limitations in human and financial resources.

The Mozambique Ministry of Health developed a comprehensive plan for the development of human resources for health: the National Plan of Human Resources Development in the Health Sector, 2008-2015. This plan has a limited focus on public health and animal health although it is well focused on health care workers in medical service.

Recommendations for priority actions

- Develop and implement a comprehensive workforce development strategy so as to sustain best practices of public health services for health.
    - Fully implement tiered FELTP training, by implementing the intermediate level epidemiology training, and strengthening the basic epidemiology training.

- Develop curriculum for basic and intermediate field epidemiology courses, building from the existing standard curriculum developed by US CDC and partners.
- Establish network of epidemiologists to enhance more collaboration and communication.

- Enhance animal – human interface (One Health approach).
  - Include the animal health sector in the work force strategy.
  - Incorporate veterinary track in the FELTP training.
- Develop career path for epidemiologists in human and animal health.

Indicators and scores

D.5.1. Human resources are available to implement IHR core capacity requirements – Score: 2

The country has multidisciplinary human resource capacity with some level of cooperation among different players. However, there is limited human resource capacity in epidemiology and disease surveillance at provincial and district levels.

Strengths/best practices

- Multidisciplinary human resource capacity at all levels, though numbers may be limited at lower levels.
- There is a National Plan for Development of Human Resource for Health in place to guide deployment of personnel around the country.

Areas that need strengthening/challenges

- There are too few epidemiologists - the country is still well below the target of one trained field epidemiologist per 200,000 population.
- The existing human resource plan does not adequately focus on public health issues.

D.5.2. Field Epidemiology Training Program or other applied epidemiology training program in place – Score: 3

Mozambique has an established FELTP programme that includes both advanced and basic level epidemiology courses. However there is no competency-based standardized curriculum for the basic course. Currently, the programme is running advanced epidemiology with two tracks: laboratory and epidemiology. Veterinarians should also be enrolled in the programme to ensure that One Health capacities are addressed by the training.

Strengths/best practices

- The country has relatively well established Field Epidemiology and Laboratory Training Program (FELTP) with basic and advanced level epidemiology courses.
- There exists a robust FELTP network connecting with other professionals within and outside Mozambique.

Areas that need strengthening/challenges

- Increase the enrolment in FELTP at all levels, to more rapidly create a critical mass of epidemiologists.
- Train veterinarians in the FELTP training to improve coordination across the animal-human interface.
- Strengthen basic epidemiology course curriculum and implement an intermediate epidemiology course.
- Ensure appropriate placing of trained professionals.

D.5.3. Workforce strategy – Score: 3

A health workforce strategy exists but there is no regular review. In addition, the existing health plan has only a minimal focus on the public health workforce.

Strengths/best practices

- Existence of a National Plan for Development of Human Resource for Health.

Areas that need strengthening/challenges

- A comprehensive workforce development strategy that covers both human and animal health needs to be developed.
- Periodic review is needed of the human resource plan to ensure that it meets the health needs of the country.
- A clear career path is needed for epidemiologists.
- A strategy should be developed to retain personnel.

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

Development and maintenance of national, intermediate (district) and local/primary 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/primary levels during a public health emergency.

Mozambique level of capabilities

Preparing for and responding to emergencies is well-established in the government of Mozambique, and it has been implementing the IHR (2005) since 2014. The country faces a multitude of risks, including cholera outbreaks, foodborne illnesses, chemical and radiological accidents, floods, drought, fires, and cyclones, which has driven the development of a national multi-hazard public health emergency preparedness and response plan covering surveillance, response, preparedness, risk communication, and public communication.

The preparedness, mitigation and response to epidemiological emergencies is coordinated by the Ministry of Health in collaboration with governmental institutions and partners (emergency operations unit), and the preparedness, mitigation as well as response to emergencies by natural disasters is coordinated by National Institute of Disaster Management (INGC). In these activities, the government coordinates with partners such as WHO, UNICEF, MSF, and OXFAM to deploy Rapid Response Teams (RRTs) to the field and organises impact assessment and response evaluations.

Recommendations for priority actions

- Finalise the multi-hazard public health emergency preparedness and response plan. The plan should address both human and animal health sectors, consistent with a One Health approach, and should include monitoring and evaluation components.
- Ensure better logistical coordination during emergencies by developing response protocols for different public health emergency events such as large outbreaks, mass casualty events, emerging and zoonotic disease threats, etc.
- Conduct regular risk mapping for major public health hazards at all levels. Mapping should include both specification of geographic areas of risk and mapping of available and needed resources to respond.

- Strengthening of risk communication and public communication through establishment of a web site or information portal for risk communication, risk management, and emergency reports.
- Allocation of resources for efficient functioning of monitoring, reporting, investigation and timely communication of public health emergencies.

Indicators and scores

R.1.1. National multi-hazard public health emergency preparedness and response plan is developed and implemented – Score: 1

Strengths/best practices

- There is a qualified technical team, and training is planned to strengthen technical capacity by level (district, provincial and national); and focal points for each incident.
- Contingency plans for each type of event are updated annually.
- There are terms of reference for emergency management teams.
- There are instruments and guidance documents, as well as specific emergency plans, protocols and standard guidelines. These have been updated after each event.
- To facilitate decision-making during an emergency, the emergency operations unit composed of different technical units acts as an Incident Command System from which all incident operations, coordination and resource management are directed.

Areas that need strengthening/challenges

- Capacity needs to be strengthened for preparedness and response to outbreaks and emergencies including simulation exercises for epidemiological incidents.
- Infrastructure for the public health emergency operations centre is needed, as well as regional centres for public health emergency response.
- Resources are needed for the efficient functioning of the monitoring, reporting, investigation and timely communication from the unit of public health emergencies in the Ministry of Health.
- Better coordination is needed between the areas of zoonosis, foodborne disease/food contamination, air and chemical surveillance and data collecting.
- The mechanisms for detecting and responding to zoonosis, foodborne disease/food contamination, air and chemical emergencies should be included within the national plan.

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

Strengths/best practices

- Incorporation of surveillance at the designated 11 points of entry (4 ports and 7 airports) in emergency plans.
- Involvement of the focal points of emergency and epidemiological surveillance in risk areas with support from local partners in coordination with the central level.
- Specialists are available 24 hours a day with designated substitutes.
- Risk assessment, risk mapping (done using the IHR decision instrument) and risk management is undertaken.
- Risk areas for each type of emergency, and risk communication at all levels is mapped annually.
- Resources to meet the public health risks are mapped annually.

Areas that need strengthening/challenges

- There are weak early warning systems across Mozambique
- Risk communication is inadequate and rarely done in a timely manner (i.e. within 24 hours); a website needs to be set up for this and to send out emergency reports.
- Investigation of surveillance rumours and follow-up investigations is poor.
- A free-of-charge telephone line is needed for communication and notification of public health emergency.

Emergency Response Operations

Introduction

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

Target

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

Mozambique level of capabilities

Mozambique is a country regularly affected by natural disasters, most commonly flooding, drought and cyclones, each of which bring health risks; severe flooding is often followed by large cholera outbreaks. Other public health emergencies also include large outbreaks of severe food poisoning. To better prepare for these kinds of emergencies, in 2006 the Council of Ministers approved a plan to prevent and mitigate natural disasters, within the National Institute of Disaster Management (INGC).

As part of the plan, they established a national emergency operations centre (CENOE), a multisector coordination and decision-making structure that brings together representatives of institutions, organizations and groups of actors directly involved in response operations to natural disasters and other emergencies. The centre's mission is to centralize inter-sectoral coordination efforts in order to respond rapidly, efficiently, and effectively to natural disasters and emergencies. In addition to CENOE operations in Maputo, there are also three regional EOCs located throughout the country.

The permanent staff at the CENOE continuously collect information from various sources, and monitor the situation to assess potential risk areas. There are focal points in each sector, and in the MoH the focal point is at the Public Health Directorate (DNSP). CENOE conducts annual simulations, and have also had simulations with community participation which have helped to sensitize the communities on the need for prevention.

The CENOE mainly operates in natural disasters and emergencies where a national response is needed. In order to better prepare and increase response capacity for public health emergencies, the MoH has drafted a plan for it to have an Operative Unit of Public Health Emergencies (UO-ESP).

For case management, the assessment team did not discuss in detail the availability of guidelines for priority risks, including procedures for isolation and referral, and how they are disseminated and implemented. It is important that there be an established procedure for case management to reduce the risk of transmission in the community or health care facilities. To fully assess Mozambique's capacity in this area, additional discussions would be needed to include both stakeholders at national level, and representatives from health care providers at all levels.

Recommendations for priority actions

- Include all relevant stakeholders to finalize and implement the draft plan of an operative unit for public health emergencies at the MoH, closely coordinated with and building on the experiences from the CENOE in terms of early detection, assessment, reporting, and coordinated response to public health events.
    - Develop supporting documentation and procedures, including staff rostering and training to implement the plan.
    - Conduct exercises to test capabilities of emergency response operations within MoH, including other sectors and administrative levels (provinces, districts).
- Based on assessments of public health threats and risks, specific incident management and case management guidelines, including procedures for patient isolation and referral, should be developed. Alert levels should be defined for specific health issues of emergency potential (i.e. outbreaks, food intoxications, mass casualty events, etc.) and included in plans and procedures.
- Assess needs and improve procedures for dissemination and implementation of case management guidelines for specific health risks of emergency potential (e.g. viral haemorrhagic fevers) to raise awareness of health care providers at all levels.

Indicators and scores

R.2.1. Capacity to activate emergency operations – Score: 4

The scores for the first two indicators (R.2.1 and R.2.2) are based on the national emergency operations centre (CENOE), which has a strong emergency operation structure for natural disasters. However, there is currently no similar capacity for public health events which limits the ability to respond to such events before it reaches the level of a national disaster. Such a centre is being planned, however.

Strengths/best practices

- Mozambique has a well-established national emergency operating centre with trained staff and good procedures and plans, staffed 24/7 and continuously working on detection, preparedness, assessment and to ensure a coordinated inter-sectoral response to natural disasters where national assistance is needed.

Areas that need strengthening/challenges

- Need for better procedures and tools to monitor situations and for timely detection of a public health event in order to rapidly activate a response when needed.

R.2.2. Emergency Operations Center operating procedures and plans – Score: 5

See comment to R.2.1.

Strengths/best practices

- The national emergency operation centre (CENOE) has procedures and plans in place that have been tested and used in real emergencies, mainly based on natural disasters. The plans are updated based on experience from exercises and response operations.
- CENOE is connected to regional EOCs with available staff and stockpiles, and have focal points in the provinces and districts.

Areas that need strengthening/challenges

- There is a lack of procedures and plans for public health incident management (i.e. outbreak investigation and response, cross-border control of disease).
- There is a need to train public health response teams in incident management.

R.2.3. Emergency Operations Programme – Score: 3

Strengths/best practices

- CENOE has annual simulation exercises, and has also had simulations with community participation. Exercises have also been conducted in some provinces and districts.
- CENOE has been activated in response to emergencies several times during the past few years, and procedures and plans have been updated based on these events.

Areas that need strengthening/challenges

- The national EOC is not used for most public health specific emergencies, and better plans and procedures for these emergencies are needed.

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

Strengths/best practices

- Case management guidelines are available for some priority diseases.

Areas that need strengthening/challenges

- The availability and awareness of case management guidelines among healthcare providers needs assessment.
- Integrated Disease Surveillance and Response (IDSR) guidelines are available (including case definitions and case management guidelines), however, these guidelines are not fully implemented in Mozambique and health staff need additional training.
- Isolation facilities are needed for highly infectious patients, and the referral system for these patients needs to be clear for the entire country.

Linking public health and security authorities

Introduction

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

Target

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

Mozambique level of capabilities

In Mozambique, the Ministry of Health coordinates with several other ministries regarding security issues: Ministry of Agriculture and Food Security, Ministry of Interior, Ministry of National Defence, Ministry of Economy and Finance, Ministry of Transportation and Communication, and Ministry of State and Public Administration.

There are currently no written agreements between public health authorities and security authorities, or entities from other sectors, regarding linkages or collaboration between public health and security sectors and this happens on an ad hoc basis. A memorandum of understanding (MoU) is being finalized between Ministry of Health and security authorities on this issue.

Exercises were conducted by the Ministry of Health during Ebola preparedness activities, with inter-sectoral collaboration with security authorities. There are no standard operating procedures in place for joint risk assessment but events of public health and security significance are discussed at regular or extraordinary meetings of government structures at all levels.

Recommendations for priority actions

- Finalize the MoU between stakeholders regarding cooperation between public health and security authorities.
- Institutionalize standard operating procedures for joint public health and law enforcement investigations and response activities.
- Conduct joint training activities between public health and law enforcement personnel at all levels.
- Secure adequate infrastructure, equipment, and human resources to conduct joint public health and law enforcement investigations, when they are needed.

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: 2

Strengths/best practices

- Development of relevant MoUs have begun and are being finalized.
- Public health and security authorities have cooperated during past public health events, including Ebola preparedness.
- Points of contact between stakeholders have been identified.
- Agreements have been reached on mutual provision of medical services between Ministry of Health and Ministry of Defence.
- Joint exercises have been done with security authorities.

Areas that need strengthening/challenges

- Links between stakeholders and communication protocols need to be finalized.
- There is a need for joint training programmes, and a regular exchange of information and reports.
- Standing operating procedures are needed for events of mutual concern.
- There are human resource, infrastructure and equipment shortages across sectors.

Relevant documentation

None provided.

Medical countermeasures and personnel deployment

Introduction

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

Target

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

Mozambique level of capabilities

Mozambique has a limited capacity for medical countermeasures, and there is no emergency medical stockpile. There are no formalized plans or procedures with customs or regulatory authorities to facilitate the rapid importation and use of medical countermeasures during an emergency. Despite this, the country has been able to import material during emergencies and institutions involved in emergency management and response are generally prompt and willing to collaborate when there is a request from upper levels of the government. WHO and the World Food Programme (WFP) also facilitate committees when an emergency arises, to coordinate medical countermeasures. For health personnel deployment, formal procedures and human asset typing are also lacking, however, several recent examples of successfully receiving and sending technical experts to rapidly respond to public health emergencies demonstrate country capacity in this area. Exercises have been previously conducted in the context of pandemic influenza and Ebola preparedness, which partially addressed issues of medical countermeasures and health personnel deployment. During the assessment visit, several key players with important roles in countermeasure deployments were not present for the discussion. These include representatives from the animal health sector, as well as representatives from Directorates of Public Health (DNSP) and Medical Assistance (DNAM). Therefore, the assessment team was not fully able to assess this capability.

Recommendations for priority actions

- Review and strengthen plans and standard operating procedures to formalize the national framework for deployment of medical countermeasures and health personnel during public health emergencies. In particular, this should include:
    - Development of a memorandum of understanding with national customs authorities, to facilitate the rapid import and export of medical supplies and equipment during a response to public health emergencies;
    - Development of fast-track regulatory authority for use of medicines or vaccines during public health emergencies that have not been previously approved for routine use in Mozambique.

- Conduct an after-action workshop with counterparts from Angola and SADC region regarding lessons learned in the deployment of medical countermeasures and health personnel in response to the Yellow Fever outbreak in Angola in 2016.
- Develop and conduct internal exercises specifically regarding the rapid deployment of medical countermeasures and personnel for a simulated public health emergency in Mozambique.

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

- Country has experience managing and responding to public health emergencies, such as disease outbreaks, floods, and food shortages related to drought.
- Past experience has demonstrated institutional and stakeholder collaboration and flexibility to adjust necessary procedures in response to public health emergencies.
- In line with WHO and IATA guidelines, some institutions such as the National Institute of Health (INS) have existing agreements (e.g. Skynet) for the transportation of emergency medications and laboratory specimens.

Areas that need strengthening/challenges

- There is no formalized national plan, or stockpile with budget, exists for rapid deployment of medical countermeasures or non-medical commodities.
- There is no formal system or standard procedures in place for sending or receiving medical countermeasures or non-medical commodities from outside of Mozambique.
- Roles and responsibilities need to be identified for coordinating activities among numerous stakeholders involved in emergency response.

R.4.2. System is in place for sending and receiving health personnel during a public health emergency—Score: 4

Strengths/best practices

- Simulation exercises have previously been conducted in the context of pandemic influenza and Ebola preparedness, which partially addressed issues of personnel deployments.
- Past experience with rapidly deploying Mozambique FELTP residents to Angola to respond to a yellow fever outbreak, and in receiving CDC EIS officers to respond to outbreaks and emergencies in Mozambique.
- Mozambique is member of AFENET and TEPHINET networks, which help facilitate rapid exchange of personnel in public health emergencies.
- Access to technical assistance from existing development partners (e.g. WHO, UNICEF, FAO, MSF, CDC) under the leadership of the Government of Mozambique, has been demonstrated in past emergencies (e.g. flood and drought response).

Areas that need strengthening/challenges

- Despite ratification of the SADC health agreement, no specific legal or regulatory processes and logistical plans are available to allow for rapid cross-border deployment and receipt of public health

and medical personnel during emergencies. Therefore, such agreements should be formalized with neighbouring states within the SADC context.

- There is no comprehensive national plan, nor are there standard operating procedures, for deployment of health personnel during an emergency; the system currently operates on informal agreements. The country has limited personnel that need further competency evaluation by tier, to facilitate deployment.
- The deployment of competency and health personnel involves many stakeholders which are not adequately coordinated. Therefore, opportunities should be sought to bring together multi-sectorial stakeholders on a periodic basis to plan and coordinate competency and health personnel deployment.

Risk communication

Introduction

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

Target

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

Mozambique level of capabilities

At the level of the Ministry of Health, there is a Department of Health Promotion that coordinates the actions of Information, Education and Communication for Health in close collaboration with the Department of Epidemiology, other related areas of the Ministry of Health and with partners, including WHO, UNICEF, other government institutions (Education, Public Works). The Ministry of Health has a strategy for greater media engagement, in which health professionals participate in disseminating key messages on issues relating to cholera and other diarrheal diseases through radio, television, public, and community. Collaboration has been established, for example, on the participation of professionals in the media that is within Corporate Social Responsibility so it is done for free. Many IEC materials have been designed, i.e. radio and television spots. Health experts record educational messages for Radio Mozambique. Key messages are sent to the Provincial Health Directorates for dissemination in schools, markets and other places where people congregate, through posters, leaflets and brochures.

A National Communication Plan for the Prevention of Cholera and other diarrheal diseases was created in 2012; through the plan, various community institutions are trained for dissemination of key messages including community leaders, religious leaders, teachers, students, and other community members.

The Department of Nutrition also works in collaboration with the Ministry of Agriculture and Food Security. There are multi-stakeholder groups composed of the Ministry of Health, other government institutions and cooperation partners at various implementation levels (central, provincial and district).

Recommendations for priority actions

- The scope of the communication plan should be diversified beyond health promotion for cholera and diarrhoea to include other diseases. After re-structuring, the plan should embrace community friendly initiatives like call centres, (i.e. ALO VIDA) and strengthen the use of community radio stations to transmit health messages in local languages.
- Ensure resources for the production of communications materials such as posters, brochures, t-shirts and manuals, which can be used as incentives for community participation in disease prevention initiatives.
- Maximize the use of social media (e.g. WhatsApp, Twitter, Facebook), mobile phone, TV, radio, print media, and communications fora such as religious organisations.
- Establish a monitoring and evaluation system for the implementation of communication strategies based on baseline information.

Indicators and scores

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

Strengths/best practices

- A National Communication plan was initiated in 2012 for the prevention of cholera and other diarrhoeal disease.
- There are various implementation levels of the communication plan at district, provincial and central levels.
- Risk communication is a component which is included in emergency preparedness and response plans. Activities, budget, responsible bodies and partners are identified in these plans.
- Communication strategies that includes establishment of communication committee that interacts with journalists, leaders, students, religious activists and other community contributors is being explored to improve sharing of appropriate messages.

Areas that need strengthening/challenges

- Coordination with other sectors at all levels of government in the area of risk communication can be strengthened to make a multi-functional group.
- Intensify advocacy to include other sectors by expanding the communication team to include other sectors and disciplines to strengthen risk communication.
- Mobilisation of funds.

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

Strengths/best practices

- A multi-sectorial and multi-disciplinary group has been formed comprising the public and private sectors, UN agencies, and NGOs.
- The multi-sectorial group meets on a regular basis complemented by informal meetings also. Stakeholders for communication are well identified in the different emergency preparedness and response plans and roles and responsibilities are defined.
- Various partners are identified, and provide support on implementation of risk communication strategies.

Areas that need strengthening/challenges

- Mechanisms are needed to coordinate communication with the private sector, civil society, and other stakeholders from other sectors, before, during, and after emergencies and outbreaks.

R.5.3. Public communication – Score: 4

Strengths/best practices

- Inclusions of health messages in media is free, resulting on more space for health matters.
- Media creating and offering space for health issues in their productions.
- Competitive media awards on health encourages involvement of the media fraternity on health issues. This results in an increased number of journalists writing quality articles on health issues.

Areas that need strengthening/challenges

- Strengthen the call centre service by exploring and capitalising ALO VIDA service beyond the attendants. This can be done by training attendants in different areas and extending the service.
- Strengthen the use of community radio and encouraging the districts to use local languages to pass on health messages. This will assist in the management of rumours and misinformation in the community.

R.5.4. Communication engagement with affected communities – Score: 3

Strengths/best practices

- The Department of Health promotion that is responsible for social mobilisation, community involvement and social communication has been integrated into the National Directorate of Public Health. This is implemented at central, provincial and district levels.
- A communication group has been created to respond to emergency issues on disease outbreaks.
- Information sharing and training opportunities are regularly done.
- There are mechanisms for managing rumours and misinformation at all levels of government.

Areas that need strengthening/challenges

- Strengthen the use of multi-appropriate approaches such electronic and social media to reach the community at various levels.
- Incorporation of other diseases in the national communication plan.
- Strengthen the use of mobile telephony in information dissemination and health messaging.

R.5.5. Dynamic listening and rumour management – Score: 3

Strengths/best practices

- The current national communication plan has been used as a guide to manage rumours on previous disease outbreaks with the support of both the print and electronic media especially newspapers, IEC materials and TV.
- The presence of some communication structures at the district levels have been used to manage rumours at community levels.

Areas that need strengthening/challenges

- The system for listening to and managing rumours is not yet coordinated and structured.
- Monitoring and evaluation of the implementation risk communication strategies can be strengthened to assist in rumour management.

OTHER

Points of Entry

Introduction

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

Target

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

Mozambique level of capabilities

Mozambique borders six other countries: Tanzania, Malawi, Zambia, Zimbabwe, Swaziland and South Africa and has 56 points of entry; four of which (one sea port and three airports) will soon be proposed as designated points of entry. There are national regulations on points of entry and requirements for vaccination against some national priority diseases at points of entry. Additionally, there are agreements with neighbouring countries on cross border movements of people. Even where these agreements are lacking, there is usually cooperation with neighbouring countries during emergencies.

At points of entry, roles and responsibilities among sectors are well identified and coordinated, both at routine times and to respond to PHEICs. The sectors working together at points of entry are The Ministries of Agriculture, Economy and Finance (Customs), Interior (Immigration and Police), and also port structures. However, capacity for assessing disease risk and implementing quarantine measures for both humans and animals does not exist evenly across all points of entry (ground crossings). There is room for improvement also in inter-sectorial coordination.

Recommendations for priority actions

- Providing 24/7 adequate health services at designated points of entry in line with the IHR (2005).
- Emergency response planning and coordination at all designated points of entry.
- Enhance communication both with available health services and other sectors.

Indicators and scores

PoE.1. Routine capacities are established at points of entry – Score: 2

Strengths/best practices

- Points of entry sectors collaborates well with local health services.

- Technicians are regularly trained for aircraft and ship inspection and on programs for vector control.
- There is a vector control programme for points of entry.
- There are animal inspections and animal quarantine capabilities at these points of entry.
- There is goods (food) inspection and control at these points of entry.

Areas that need strengthening/challenges

- Regulating the movement at border areas that share similar language and culture as it is very difficult to manage people movement, animals, and goods through ground crossings.
- Inadequate human resources to implement public health measures at all points of entry.
- Enhance safe environmental activities.
- Not all points of entry achieve IHR core capacity requirements (annex 1-B).

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

Strengths/best practices

- Public Health Emergency Response Contingency Plan as part of the points of entry Global Emergency Plan.
- Public Health is represented at airport Facilitation and Security Committee (FALSEC) and Emergency Committee (there was no information available related to this aspect for the port).
- Points of entry have facilities for assessment and quarantine of both suspected travellers and animals.
- There is a functional referral system for the health centre.
- Coordination with security authorities is in place and effective.
- Regular simulation exercises are being carried out.
- Mozambique is a member of the Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA).

Areas that need strengthening/challenges

- Insufficient infrastructure and equipment.
- Separate premises are needed to interview suspect travellers.
- Emergency response planning and coordination needs strengthening.

Chemical events

Introduction

Since the 1970's the production and use of chemicals has increased 10 fold and the trend worldwide has seen more of the production growing faster in developing countries. WHO estimates 25% of the global burden of disease to environmental factors that includes toxic chemicals. The importance of chemical risk management particularly in developing countries cannot be overstated.

Target

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

Mozambique level of capabilities

The Ministry for Coordination of Environmental Action (MICOA) is the Government institution responsible for ensuring the conservation and sustainable use of natural resources, coordination of environmental activities and environmental regulation. The Provincial Directorate for the Coordination of Environmental Action (DPCA) and in some cases the District Directorate for the Coordination of Environmental Action (DDCA) are the local representatives of MICOA.

In 1995, the National Environment Policy (Resolution N°5/95 of August 3) was adopted as the basic instrument for sustainable development in Mozambique, with the basic goals to eradicate poverty, improve quality of life and reducing environmental threats. Mozambique has also developed environmental regulation for mining activities.

There is no available inventory or accounting of chemical agents and their disposition that would facilitate a comprehensive risk assessment of chemical events or development of risk mitigation strategies.

Recommendations for priority actions

- Develop, update, and strengthen manuals, guidelines, and standard operating procedures for investigation of chemical events.
- Assess laboratory capacity to confirm priority chemical events and improve laboratory capacity for detection and identification of chemical agents using recognized methods (e.g. gas chromatography, mass spectroscopy.)
- Conduct a comprehensive inventory and risk assessment of existing chemical agents in the country and their users.
- Collect, update and disseminate existing surveillance data for chemical events, intoxications, and poisonings events.

Indicators and scores

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

Strengths/ Best Practices

- Developed a legal framework regulating environmental issues in Mozambique that covers earth, water, management of natural Resources, protected areas and heritage, mining effluent and emissions, fisheries, and pesticides.

Areas that need strengthening/challenges

- Shared understanding of the IHR (2005) and expectations, as they relate to chemical events.
- Develop a road map or strategic plan to mitigate health risks due to chemical events.
- Develop reports and inform stakeholders at all levels regarding risk of chemical events.

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

Strengths/best practices

- Specialized Health and Safety Study conducted for the Social and Environmental Impact Assessment (AIAS).

Areas that need strengthening/challenges

- Development of a national inclusive plan.
- Disseminate existing standard procedures, documents, and reports.
- Leverage the SADC regional platform and opportunities to address chemical events.

Relevant documentation

- National Environmental Policy [O Quadro Legal Para Licenciamento Ambiental em Mozambique].
- Strategy and Action Plan for Nutritional and Food Security 2008-2015 - Nutritional and Food Security, a Right for a Healthy Mozambique Free of Hunger.
- Electric power legislation.
- Land tenure law.
- Mining law.
- Mozambique Waste Management Regulation (Decree N°15/2006 - June 15).
- Procedures for the registration of companies, fertilizers and their quality control.

Radiation Emergencies

Introduction

Radiation emergencies may involve facility, hospital and other personnel, emergency workers, medical patients, and members of the general public. Nuclear emergencies, with Chernobyl as a dramatic example, may result in significant public overexposure. Over the past two decades a number of members of the public have received high doses as a result of lost or stolen sources used either in industrial radiography or medical therapy.

Experience has shown that in many radiation emergencies, the severity and extent of the medical consequences could be restricted by effective general and, in particular, medical response. Therefore, the preparedness for medical response to radiation emergencies should be in place in all countries.

Target

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

Mozambique level of capabilities

The National Atomic Energy Agency (ANEA) is responsible for the coordination, control and supervision of the security and safety of the activities associated with, or that can result in radioactive emissions, as well as the actions related to the use of ionizing radiation sources, materials, devices and radioactive substances in all economic and social sectors, public and private. There is a technical board headed by the Director of the ANEA and includes members from the ministries of Foreign Affairs and Cooperation, Mineral Resources and Energy, Science and Technology, Education, Health, Agriculture and Food Security, Environment, Transport, Interior, Industry and Trade, National Institute of Disaster Management, and other relevant institutions.

At the local level, the Institutional Technical Board supports the regional, provincial and district ANEA delegation.

Mozambique has not run a radiation safety assessment in the past 5 years but is party to international conventions below:

1. Agreement on the Privileges and Immunities of the IAEA (2011-03-15);
2. Convention on the Physical Protection of Nuclear Material (2003-04-02);
3. Convention on Early Notification of a Nuclear Accident (2009-11-29);
4. Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (2009-11-29);
5. Revised Supplementary Agreement Concerning the Provision of Technical Assistance by the IAEA (RSA) (2011-02-23);
6. African Regional Co-operative Agreement for Research, Development and Training Related to Nuclear Science and Technology (AFRA)-Fourth Extension (2011-08-11);

7. Agreement between the Republic of Mozambique and the IAEA for the Application of Safeguards in connection with the Treaty on the Non-Proliferation of Nuclear Weapons (2011-03-01);
8. Protocol Additional to the Agreement between the Republic of Mozambique and the IAEA for the Application of Safeguards in connection with the Treaty on the Non-Proliferation of Nuclear Weapons (2011-03-01).

Recommendations for priority actions

- Develop, review, and update national plans to include guidance on the transport of radioactive material, sample and waste management, from all industry, including health.
- Strengthen the risk assessment surveillance and evaluate response capacity for radiological events.
- Strengthen coordination and support from the technical board on radiation at ANEA and in laboratory radio-protection.
- Strengthen human resource capacity in terms of additional staff, training, and timely procurement of appropriate equipment.
- Advocacy for the approval of the atomic energy law.

Indicators and scores

RE.1. Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies – Score: 2

Strengths/best practices

- The National Atomic Energy Agency has staff trained in responding to radiation threats.
- DNAM/MISAU has had a laboratory for Radiation Protection and Safety since 2010.
- Radio-nuclear material is consolidated in small number of facilities, i.e. Maputo Central Hospital (HCM).
- DNAM/MISAU has a national inventory of x-ray machines in health facilities.

Areas that need strengthening/challenges

- Development of national legislation regarding radiation and atomic energy.
- Monitoring of consumer products (e.g. food products and goods).
- Ensure adequate and sustained human resources, training and finance for radiation safety.
- Create reference health care facilities for radiation emergencies and response capacity at national, regional, and provincial levels.

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

Strengths/best practices

- Country Programme Framework on Radiation 2014-2018.
- SOP for transporting radioactive materials.

Areas that need strengthening/challenges

- Operationalize national and sub-national technical board on radiological and nuclear events.
- Development of Emergency Response Plan for Radiation emergencies.
- Development of SOP for radiation emergency response in large scale events, follow-up of patients, decontamination of people, premises and environment, etc.
- Development of multisector/interdisciplinary coordination mechanisms regarding radiation safety.

Appendix 1: Mozambique assessment background

Mission place and dates

Maputo, Mozambique; April 18-22, 2016

Mission team members

- Karen Sliter, USA, Department of Agriculture (Team Lead)
- Rajesh Sreedharan, WHO (Team Co-Lead)
- Sam Okuthe, FAO (Team Co-Lead)
- Ali Ahmed Yahaya, WHO AFRO
- Soatiana Rajatonirina, WHO AFRO
- Charles Mugero, WHO AFRO
- Maria Joao Martins, Portugal, WHO
- Oenedo Gumarang, Indonesia, Ministry of Health
- Ni Ketut Susi, Indonesia, Ministry of Health
- Donata Galloni, Italy, Ministry of Health
- Waqo Boru, Kenya, Ministry of Health
- Karin Nygard, Norway, Ministry of Health
- Timothy Doyle, USA, Centers for Disease Control and Prevention (CDC)

Objective

To assess Mozambique's capacities and capabilities relevant for the 19 technical areas of the JEE tool in order to provide baseline data to support Mozambique's efforts to reform and improve its public health security, and to meet its obligations under the WHO IHR (2005).

Preparation and implementation of the mission

- Mozambique is a member of the Global Health Security Agenda (GHSA) and requested a JEE as part of their commitment to this effort.
- Mozambique completed a self-assessment using the JEE Tool; it was the third country to use the Joint External Evaluation Tool.
- The Mozambique team's goals for the evaluation were to receive feedback on its public health and emergency response systems, to identify gaps, and to prioritize areas for future investment.

Limitations and assumptions

- This evaluation was only a week long, which limited the amount and depth of information which could be managed.
- It is assumed that the results of this evaluation will be made available publically.
- The evaluation was based on information provided through the self-assessment document, presentations from Mozambican participants during the mission, and direct conversation and discussions with staff from a variety of Mozambican agencies.

- The evaluation is not an audit, and information provided by Mozambique will not be independently verified. Information provided by Mozambique was discussed, and an evaluation rating was mutually agreed to by the Host Country and External Evaluation Team.

Key host country participants and institutions

Mozambique Lead Representative:

Ilesh Jani, Director, National Institute of Health (INS)

Participating Institutions:

- Ministry of Health (MISAU)
  - Vice-Minister of Health
  - National Institute of Health (INS)
  - National Directorate of Public Health (DNSP)
- Ministry of Agriculture
- Ministry of Interior
- Manhica Health Research Centre
- University Eduardo Mondlane
  - Veterinary/ Biotechnology Centre Faculty
  - Department of Biological Sciences
  - Faculty of Medicine
- MIC – Maputo Local Government General Inspection
- National Directorate of Medical Assistance
- Maputo Central Hospital
- Maputo International Airport
- Maputo Military Hospital
- Mavalane General Hospital
- Emergency Operations Centre (CENOE)
- National Directorate of Veterinary Services (MASA)
- Medical Council
- MININT
  - General Command of the Police
  - Border Guards
  - National Directorate of Customs
  - National Migration Directorate
- National Atomic Energy Agency (ANEA)
- National Institute of Disaster Management
- Zimpeto Health Centre Laboratory
- SETSAN

- MCTESTP
- COPI
- INAM – DCA
- ISCISA
- ISCTEM
- MDN

Supporting documentation provided by the country

National legislation, policy and financing

Relevant Documentation

- Decree No. 45/2004, Regulation on the Environmental Impact Assessment Process.
- Decree No. 11/2006 of 15 June 2006 Regulation of Environmental Inspection.
- LEG 01 – Constitution of the Republic of Mozambique.
- LEG 02 – Decree Law nr. 10/2000, May 23 - Creates the CNCS and its Executive Secretariat.
- LEG 03 – Decree Law nr. 11/2006, June 15 - Regulation on Environmental Inspection.
- LEG 04 – Decree Law nr. 53/2008, December 30 - Technical devices that allow accessibility for disabled.
- LEG 05 – Decree Law nr. 82/2003, February 18 - Regulation on Biomedical Waste Management.
- LEG 06 – Decree Law nr.26/2009, August 17- Regulation of Animal Health.
- LEG 07 – Resolution 4/1995, July 11 - Health Sector Policy 1995-1999.
- LEG 08 – Resolution 27/2000, October 31 - Protocol on Health in SADC.
- LEG 09 – Resolution 15.2003, April 4 - Policy and Strategy to Prevent and Combat Drugs.
- LEG 10 – INS Strategic Plan 2010-2014.

IHR coordination, communication and advocacy

Relevant Documentation

- Multisector and Multi-annual Plan for the Implementation of IHR, 2012-2014.

Antimicrobial resistance

Relevant documentation

- Draft of National Antimicrobial Resistance Surveillance Protocol version 1.0 of 2015.
- Strategic Plan for Malaria Control for 2012 – 2016.
- Malaria Drugs Efficacy Protocol version 2.0 of 2015.
- Manual of Diagnosis and Treatment of MDR TB, 2009.
- HCAI prevention and control reference manual, 2014.
- Copy of 2013 Tuberculosis Technical Report showing MDR and XDR.
- Copy of 2014 Tuberculosis Technical Report showing MDR and XDR.
- Copy of 2015 Tuberculosis Technical Report showing MDR and XDR.

- Copies of Proficiency Results of National Microbiology Reference Laboratory.
- Copies of Proficiency results of Tuberculosis National Reference Laboratory.
- Copies of Proficiency results of Beira Tuberculosis Regional Reference Laboratory.
- Copy of 2014 HCAI prevention and Control Annual Report.
- GARP Situation Analysis and Recommendations on AMR.
- Preparation of Strategic Program to strengthen Veterinary Services, 2009.
- Animal Veterinary Inquiry Results, 2012.
- National Drugs Formulary, 2007.
- Law 4_98. Drug 1.
- Law 4_98. Drug 2.
- Law 219_2002. Animal Health.
- GHSA Pilot Assessment Tool - 2nd Revised Version.

Zoonotic Disease

Relevant documentation

- Census of agriculture and livestock 2009-2010: Final results.
- Decree Law nr. 26/2009, August 17 – Regulation of animal health.
- List of zoonotic priority pathogens for public health (From Decree Law nr. 26/2009, August 17 – Regulation of animal health).

Food Safety

Relevant documentation

- FOO-01: Security Strategy for food and nutrition (ESAN) and Action plan for Security Strategy for food and nutrition (PASAN).
- FOO-02: Security Strategy for food and nutrition for CPLP community (ESAN-CPLP).
- FOO-03: Multisector action plan for the reduction of chronic malnutrition (PAMRDC) 2011-15 (2020).
- FOO-04: Strategic Plan for the Development of the Agricultural Sector (PEDSA) 2011-2020.
- FOO-05: Plan for Poverty Reduction Action (PARP) 2011-2014.
- FOO-06: National Agriculture Investment Plan 2014-2018 (Comprehensive Africa Agriculture Development Programme).
- FOO-07: Regulation for animal safety by the decree 26/2009.
- FOO-08: Regulation on the quality of bottled waters intended for human consumption.
- FOO-09: Regulation on the quality of water for human consumption; 2004.
- FOO-10: Cleaning and hygiene in fish processing establishments 2013.
- FOO-11: Regulation for livestock safety.
- FOO-12: Regulation on meat inspection.
- FOO-13: CODEX Alimentarius standards.
- FOO-14: Mozambican standards (cereals, soft drinks, cooking salt, spirits, vegetable oils, pasta, milk, wheat flour, beer, cassava flour) 2012.

- FOO-15: Collection of Legislation under the food hygiene (1984).
- FOO-16: Code of good practice for manipulation of ready food consumption (2000).

Biosafety and Biosecurity

Relevant documentation

- DCA/IIAM Regulation of Biosafety, 2004.
- Decree Law nr. 26/2009, August 17 – Regulation of Animal Health.
- Decree Law nr. 71/2014, November 28 – Regulation on the Management Biosafety on Genetically Modified Organisms.
- Decree Law nr. 8/2003, February 18 – Regulation on the Management of Biomedical Waste.
- DINAV/DCA/IIAM/MASA OIE PVS/MOZ/1-2008 Report.
- Guideline on Safety, Hygiene and Health at work, 2008.
- INS General Regulation of Internal Biosafety Committee 2015-2016.
- INS Manual of Laboratory Biosafety, 2013.
- Guidelines on prevention and post-exposure prophylaxis for HIV, 2014.

Immunization

Relevant documentation

- Mozambique NIP Comprehensive Multi-Year Plan (CMYP) 2014-2019.
- Expanded Program of Immunization Reports 2014/2015 [NOT YET AVAILABLE (only 1 slide shown during the presentation) further documentation requested].

National Laboratory System

Relevant documentation

- Draft of the National Laboratory Strategic Plan defining tiered laboratory network.
- Draft of the National Laboratory Policy.
- Certificate of accreditation of the National TB Reference Laboratory.
- Certificate of accreditation of the National Food and Water Laboratory.
- Decree Law nr. 26/2009, August 17 – Regulation of animal health.
- Protocol on health in the Southern African Development Community.
- Implementation manual for POC-CD4 in Mozambique.
- Laboratory supervision checklist.

Real-time surveillance

Relevant documentation

- RTS 01 – Epidemiologic Surveillance Manual Vol.II. Part I.
- RTS 02 – Epidemiologic Surveillance Manual Vol.II. Part II.
- RTS 03 – MoH Epidemiological Bulletin.
- RTS 04 – INS Laboratory-based surveillance monthly report - January 2016.

Reporting

Relevant Documentation

- REP 01 – Summary on the level of implementation of the IHR core capacity.
- REP 02 – Updated list of IHR National team with contact details/functions and responsibilities.
- REP 03 – Protocol on Health in the Southern African Development Community Mozambique regulation bill on IHR Summary Report on IHR core capacity implementation produced by WHO.
- REP 04 – Minutes or reports of the multi-sectoral committee.
- REP 05 – Report of the Ebola desk simulation.
- REP 06 – Notification report to FAO/OIE.
- REP 07 – IHR decision-making instrument.

Workforce Development

Relevant documentation

- WOR 01 – Field epidemiology and laboratory training master curriculum.
- WOR 02 – National Plan of Human Resources Development in the Health Sector, 2008-2015 (PNDRH).
- WOR 03 – Evaluation of National Plan of the Health Human Resources Development 2008-2015.
- WOR 04 – Decree Law no. 43/2014, August 29 - Regulation of Medical Statute in Public Administration.
- WOR 05 – Profile of Human Resources for Health Mozambique, 2013.
- WOR 06 – 5º Statistical Directory on Human Resources for Health in Mozambique, 2014.

Preparedness

Relevant documentation

- WHO guidelines tool and installation and Implementation of the Public Health Emergency Operating Centre.
- Plan of public health emergency of MoH.
- Public health emergency unit of the MoH.
- Health sector intervention with standard for response to emergency by natural disasters INGC.
- Law 15/2014 – Disaster Management Act.
- International Health Regulations (2005).
- Contingency plan for rainy and cyclone season 2015/2016.

Emergency Response Operations

Relevant documentation

- Establishment of Emergency Operating Centre – CENOE.
- Technical proposal to establish an Operative Unit of Public Health Emergencies (UO-ESP).

Linking public health and security authorities

Relevant documentation

None provided

Medical countermeasures and personnel deployment

Relevant documentation

- Pandemic Preparedness Plan.
- Military Support to Civil Authorities Disaster Contingency Plan.
- Protocol on Health in the Southern African Development Community.
- Report on technical assistance for Yellow Fever control in Angola, March 2016.

Risk communication

Relevant documentation

- National Strategy for Health Promotion (2009-2014).
- National Strategy for Health Promotion (2015-2019).
- National Communication Plan for the prevention of Cholera and other diarrhoeal diseases (2012).
- Key communication messages.
- Training manual for community outreach workers in emergency settings. [Manual de Formacao de Activistas no ambito das Emergencias.]

Points of Entry

Relevant documentation

- PoE1 - PoE checklist Core Capacity Requirements Assessment Tools for Designated Airports, Ports and Ground Crossings: http://www.who.int/ihr/ports_airports/PoE/en/index.html.
- PoE2 – Final report on evaluation of minimum capacities for implementation of the International Health Regulation; Maputo, December 2010.

Chemical events

Relevant documentation provided by the country

- National Environmental Policy [O Quadro Legal Para Licenciamento Ambiental em Mozambique].
- Strategy and Action Plan for Nutritional and Food Security 2008-2015 - Nutritional and Food Security, a Right for a Healthy Mozambique Free of Hunger.
- Electric power legislation.
- Land tenure law.
- Mining law.
- Mozambique Waste Management Regulation (Decree N°15/2006 - June 15).
- Procedures for the registration of companies, fertilizers and their quality control.

Radiation Emergencies

Relevant documentation

- RE-01: Decree law nr. 67/2009, December 11 – Creation of the National Atomic Energy Agency (ANEA).
- RE-02: Country Programme Framework on Radiation (2014-2018).
- RE-03: DNAM/MISAU National inventory of X-Ray machines

WHO/WHE/CPI/2017.19