JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES

of the

REPUBLIC OF ZAMBIA

Mission report:

7-11 August 2017

World Health Organization

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Contents

ACKNOWLEDGEMENTS

Abbreviations

AEFI	Adverse Effects Following Immunization
CDC	United States Centres for disease control and prevention
DMMU	Disaster Management Mitigation Unit
EPI	Expanded Programme for Immunization
EPR	Emergency Preparedness & Response
FETP	Field Epidemiology Training Programme
GAP	Global Action Plan
GHS	Global Harmonised System
GLASS	Global Antimicrobial Resistance Surveillance System
IAEA	International Atomic Energy Agency
IDSR	Integrated Disease surveillance & Response
IHR	International Health Regulations (2005)
IPC	Infection Prevention & Control
MCM	Medical Counter Measures
MOF	Ministry of Finance
MOFL	Ministry of Fisheries & Livestock
MOH	Ministry of Health
MOU	Memorandum of Understanding
NAP	National Action Plan
NEPPC&MC	National Epidemic Preparedness, Prevention, Control and Management Committees
NGO	Non-Government Organisation
OIE	The World Organisation for Animal Health
PHA	Public Health Act
PHC	Primary Health Care
PHEIC	Public Health Emergency of International Concern
PHEOC	Public Health Emergency Operation Centre
RPA	Radiation Protection Authority
SADC	Southern African Development Community
SBCC	Social & Behaviour Change Communication
SOP	Standard Operating Procedures
TDG	Transportation of Dangerous Goods
TWG	Technical Working Group
UNZA	University of Zambia
UTH	University Teaching Hospital
VS	Veterinary Sector
ZEMA	Zambia Environmental Management Agency
ZNPHI	Zambia National Public Health Institute

Executive summary

Findings from the joint external evaluation

The Republic of Zambia is in the southern part of the African continent and is surrounded by 8 other countries; Tanzania, Democratic Republic of Congo, Malawi, Mozambique, Zimbabwe, Botswana, Namibia, and Angola, giving it a vast responsibility for border control. The country is divided into 10 provinces which are predominantly rural and 110 districts. Its population was estimated to be 15 million in the 2010 census. The overall responsibility for the coordination and management of the health sector lies with the Ministry of Health (MOH). The sector is coordinated through the national, provincial, district and community level which facilitates and maintains the link between the various communities and the health system.

Technical presentations led by the MoH were given by the multi-sectoral Zambian team focusing on the self-assessment they had conducted, followed by a joint multisectoral discussion. The joint recommendations that followed were the result of this process, supported with various field visits.

Overarching issues and priority recommendations:

Several overarching themes emerged during the evaluation process.

Legislation, Guidelines, and Formalised Systems:

Although there are several laws in operation such as the Public Health Act 1995 and the Food and Drug Act 2007, they do not effectively accommodate the requirement of the International Health Regulations (2005) (IHR) or the standards of the World Organisation for Animal Health (OIE). In Food Safety, there was a requirement for the new law to bring the food processing functions from farm to fork in line with the IHR (2005) and to include the veterinary services and all other relevant ministries to ensure a multisectoral approach. Similar observations were made in other technical areas. They included the need for Zambia to finalize its multi-hazard health emergency preparedness and response plan and other plans that were still in draft form. Also recommended was the legalisation of the neighbourhood health committees to boost health education at the community level and formalized relevant agreements regarding public health emergencies with neighbouring countries. The finalization of the national nuclear and Radiological Emergency Preparedness Response Plan and the National Nuclear Policy was also recommended. In other areas, it was suggested by the experts that Zambia creates plans and strategies, for example, for the control and prevention of zoonotic diseases, and the uncontrolled use of antimicrobials in both human and animal health. Other recommendations from the team of experts was for the inclusion of some of the current structures such as the National Epidemic Preparedness, Prevention, Control and Management Committee (NEPPC&MC) to be formally adopted in the Public Health Act currently being reviewed and National Action Plans for designated Points of Entries.

However, Zambia is making steady progress in the legislative process to pass the Public Health Act and the Food and Drug Act. It is expected that these new pieces of legislation will bring about the coordination, strengthening, and the clarification of the roles and responsibilities of the various agencies under the banner of a One Health approach.

Collaboration and Information Sharing

The need for collaboration and sharing of information with other stake holders and Ministries was emphasized during the evaluation. The absence of linkages created missed opportunities for joint working and systems that would assist in bringing about a One Health approach to encourage, extend, and facilitate interaction.

Although guidelines and systems existed in some areas, these were not shared with the relevant stakeholders and dialogue between the different sectors was sub-optimal. Some of the areas highlighted included:

1) Strengthening multisectoral coordination to enhance information sharing among stakeholders involved in Emergency Response.
2) A One Health approach in the testing of diseases and their surveillance that will incorporate private laboratories.
3) Coordination for chemical safety between different relevant government agencies.
4) The establishment of protocols and Standard Operating Procedures (SOPs) between the various entities including health, defence, security, law enforcement and international organisations in Public Health and Security including the National IHR Focal Point (NFP).
5) Creation of an All Hazard Public Risk Communication Plan to be shared with all sectors for effective synchronization and collaboration.

It is important not only to create these systems but to ensure that they are shared and effectively operated in order for them not to become fragmented and uncoordinated. Closely aligned to this will be the missed opportunities for joint training exercises which facilitate the sharing of knowledge and expertise within the various sectors. Here, the experts stressed the importance of an inclusive One Health approach that must fully embrace the animal and environmental health sectors and strengthen the NFP to enable proper coordination and reporting to all relevant stakeholders.

The Directors and Ministries Response: The way forward for Zambia

In looking forward however, Zambia should be extremely proud of its workforce. The total commitment and dedication of the national experts to the evaluation process was evident in the clear and informative presentations and the discussions that ensured with the external team. The staff on the ground who were encountered during the field visits were also noted to be passionate in carrying out their various duties.

The MOH and the various Directors in their closing summaries were open and accommodating and fully embraced the results of the JEE; seeing it as a process that can only aid Zambia's progress in fully meeting its IHR (2005) responsibilities. It is an exciting time for Zambia as it embarks on major changes which include the revision and finalization of the Public Health Act and the Animal Health Act and the amendment to the Disaster Management Act and the Food and Drug Act 2007. The experts, through the joint evaluation process and in collaboration with the presenters have provided some direction in terms of the gaps that should be filled.

Another arm of change is the current overhaul of the health sector, focusing on health promotion, disease prevention and rehabilitative services. The Zambian National Public Health Institute (ZNPHI) performs all functions pertaining to disease surveillance, intelligence, and epidemic preparedness. With a national budget, it is well placed to improve the surveillance capacity and is committed to a timelier and better documented data that will facilitate the sharing of information and good channels of communication.

The Director of Health acknowledged that this channel of communication needs to be widely extended to be all-encompassing and it was stated that the imminent Public Health Act will bring together all the different ministries and coordinate roles and responsibilities. The limited resources of those on the ground will be appraised and issues around inadequate facilities will be addressed and working environments improved.

The animal sector was equally aware of the gaps in collaboration with the human sector and the director very much hoped that the priority actions jointly agreed will assist Zambia to focus on working more collaboratively with other sectors.

In summary, Zambia is rising to the challenges it faces with the current developments in the country. A multi-hazard National Action Plan for Health Security building on the JEE and other past assessments will help to channel resources from the government and partners to address gaps identified. This, in addition with adequate and relevant training of the workforce, essential guidelines and procedures and the realization of plans and legislation currently in the draft stage will set the scene for delivering the requirements of the IHR (2005) in a One Health perspective.

Republic of Zambia scores

Technical areas	Indicators	Score
National legislation, policy and financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies, or other government instruments in place are sufficient for implementation of IHR (2005)	**2**
	P.1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with 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	**1**
Antimicrobial resistance	P.3.1 Antimicrobial resistance detection	**4**
	P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens	**4**
	P.3.3 Health care-associated infection (HCAI) prevention and control programmes	**3**
	P.3.4 Antimicrobial stewardship activities	**3**
Zoonotic diseases	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	**3**
	P.4.2 Veterinary or animal health workforce	**4**
	P.4.3 Mechanisms for responding to 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 diseases	**2**
Biosafety and biosecurity	P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	**2**
	P.6.2 Biosafety and biosecurity training and practices	**1**
Immunization	P.7.1 Vaccine coverage (measles) as part of national programme	**4**
	P.7.2 National vaccine access and delivery	**4**
National laboratory system	D.1.1 Laboratory testing for detection of priority diseases	**4**
	D.1.2 Specimen referral and transport system	**2**
	D.1.3 Effective modern point-of-care and laboratory-based diagnostics	**3**
	D.1.4 Laboratory quality system	**3**
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**
Reporting	D.3.1 System for efficient reporting to FAO, OIE and WHO	**2**
	D.3.2 Reporting network and protocols in country	**2**
Workforce development	D.4.1 Human resources available to implement IHR core capacity requirements	**3**
	D.4.2 FETP[1] or other applied epidemiology training programme in place	**3**
	D.4.3 Workforce strategy	**2**

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1   FETP: Field epidemiology training programme

Technical areas	Indicators	Score
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	2
	R.2.2 EOC operating procedures and plans	1
	R.2.3 Emergency operations programme	1
	R.2.4 Case management procedures implemented for IHR relevant hazards.	2
Linking public health and security authorities	R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) are linked during a suspect or confirmed biological event	1
Medical countermeasures and personnel deployment	R.4.1 System in place for sending and receiving medical countermeasures during a public health emergency	1
	R.4.2 System in place for sending and receiving health personnel during a public health emergency	1
Risk communication	R.5.1 Risk communication systems (plans, mechanisms, etc.)	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	4
Points of entry	PoE.1 Routine capacities established at points of entry	1
	PoE.2 Effective public health response at points of entry	1
Chemical events	CE.1 Mechanisms established and functioning for detecting and responding to chemical events or emergencies	2
	CE.2 Enabling environment in place for management of chemical events	3
Radiation emergencies	RE.1 Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies	2
	RE.2 Enabling environment in place for management of radiation emergencies	2

Scores: 1=No capacity; 2=Limited capacity; 3=Developed capacity; 4=Demonstrated capacity; 5=Sustainable capacity.

PREVENT

National legislation, policy and financing

Introduction

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

Target

Adequate legal framework for States Parties to support and enable the implementation of all their obligations, and rights to comply with and implement the IHR (2005). New or modified legislation in some States Parties for implementation of the IHR (2005). Where new or revised legislation may not be specifically required under the State Party's legal system, States may revise some legislation, regulations or other instruments in order to facilitate their implementation and maintenance in a more efficient, effective or beneficial manner. States Parties ensure provision of adequate funding for IHR implementation through the national budget or other mechanism.

Zambia level of capabilities

Zambia has a Public Health Act (PHA) of 1995 which has the objective of addressing disease prevention and public health surveillance and response. The Food and Drugs Act 2007, addresses consumer protection against hazards and frauds in the sale of food. The Disaster Management Act outlines the implementation of multisector disaster and emergency responses coordinated by the Office of the Vice President. The country is implementing the Integrated Disease Surveillance and response (IDSR) strategy in the identification of diseases, reporting, assessment, response, monitoring and evaluation of priority diseases, conditions, and events. Other relevant legislation includes Environmental Management Act of 2011, the Animal Health Act of 2010 and the Zambia Wildlife Act of 1998. Under the strong coordination mechanisms under the Southern African Development Community (SADC) Regional Collaborative Centre, a Memorandum of Understanding (MoU) for communicable diseases was signed in May 2011 with neighbouring countries namely Angola, Namibia, the Democratic Republic of Congo (DRC), Congo and Zambia. There is also an arrangement between DRC and Zambia to exchange information on public health emergencies for the prevention and control of Public Health Emergencies of International Concern (PHEICs).

An assessment of both the Public Health Act and the Food and Drugs Act was undertaken with a key recommendation being the need to review the PHA to incorporate IHR (2005). The review process is underway with issues of IHR co-ordination, the NFP and capacity strengthening in areas such as points of entry being incorporated in the revised PHA which is currently in draft form.

Recommendations for priority actions

- Finalize the revision of the Public Health Act and Food and Drug Act to take into consideration the provision of the IHR.

- Finalize agreements/protocols on IHR coordination among various government ministries and partners.

- Document and finalize agreements, protocols, or MOUs with neighbouring countries regarding public health emergencies.

- Develop SOPs to support implementation of IHR (2005) including provisions for resources.

Indicators and scores

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

Strengths/best practices

- Zambia is a signatory to IHR (2005) and is implementing the IDSR strategy down to the lower levels of the health care system.

- Various forms of legislation related to public health are in existence.

- There is strong political will to address gaps in the existing PHA including the inadequate legislation covering IHR (2005). This is obvious in the ongoing revision of the PHA which has been multisectoral, drawing participants from Human and Animal Health, Environment, and Food Safety.

- The proposed establishment of the ZNPHI which will have the legal mandate to coordinate disease prevention, control and response activities also shows commitment to strengthen public health structures.

Areas that need strengthening/challenges

- There is a need to complete the legal processes involved in the passing of the revised PHA to incorporate IHR 2005 as soon as possible since the process has been protracted.

- Current collaborations between government agencies are largely informal and are not backed by formal institutionalized arrangements and memorandum of understanding.

- Formal agreements with neighbouring countries on public health emergencies are still inadequate for collaborative approach for disease prevention and control across the region.

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 Focal Point (NFP) for IHR has been identified within the MOH to communicate notifications and information to WHO and other stakeholders.

- Plans are underway to address human resource gaps such as the institutionalization of port health staff at Points of Entry.

Areas that need strengthening/challenges

- A clear structure outlining the roles and responsibilities for IHR coordination and consistent resources to enable adequate functioning of the IHR national focal point (NFP) to adequately discharge expected duties are outstanding.

- Modalities to incorporate staff such as those for port health in the human resource structure in compliance with IHR (2005) are not yet in place.

- MoH (2015) IHR (2005) Implementation Plan, Lusaka.

IHR coordination, communication and advocacy

Introduction

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

Target

Multisectoral/multidisciplinary approaches through national partnerships that allow efficient, alert and responsive systems for effective implementation of the IHR (2005). Coordinate nationwide resources, including sustainable functioning of a national IHR focal point – a national centre for IHR (2005) communications which is a key requisite for IHR (2005) implementation – that is accessible at all times. States Parties provide WHO with contact details of national IHR focal points, continuously update and annually confirm them.

Zambia level of capabilities

The National IHR Focal Point (NFP) is designated at Ministry of Health in the Department of Health Promotion, Environment, and Social Determinants. Stakeholders have been identified but not formally appointed. The general terms of reference for the IHR coordination committee (technical working group (TWG)) have been developed but SOPs for the coordination, communication, and advocacy for smooth operation of the NFP are yet to be put in place. An IHR plan (2013-2015) was developed and implemented.

There is a multi-sectoral, multidisciplinary body, epidemic and response committee, the NEPPC&MC addressing IHR requirements on surveillance and response for public health emergencies of national and international concern. This Committee participated in the response to the cholera outbreak in 2016 and 2017. Some members are ad hoc and participate in meetings as and when relevant. The frequency of NEPPC&MC meetings depends on whether there is an ongoing public health event. Outside these meetings, there is no formal mechanism for systematic information sharing / communication between relevant sectors.

Recommendations for priority actions

- Develop terms of reference that define the roles and responsibilities of NFP and IHR TWG.

- Develop relevant SOPs for communication and coordination between the NFP and identified sectors, WHO and OIE.

- Establish a One Health platform where all stakeholders are represented for proper coordination of IHR activities.

- Conduct simulation exercises to test the coordination and communication mechanism between the NFP and stakeholders including WHO, and OIE.

- Build capacity of IHR NFP and focal persons of identified sectors to facilitate IHR implementation.

Indicators and scores

P.2.1 A functional mechanism established for the coordination and integration of relevant sectors in the implementation of IHR – Score 1

Note: While the NEPPC&MC is in place, it does not serve as the formal mechanism for IHR coordination, communication and advocacy with consistent participation of all relevant ministries.

Strengths/best practices
- Technical committee for IHR is established although not formalized; and ministries have been requested to submit their focal people. Some focal people from stakeholders are appointed. The process is on-going.
- Even though not formalized, the NFP is linked to other stakeholders.
- Availability of IHR plan which was implemented (2013-2015).

Areas that need strengthening/challenges
- Coordination and communication between NFP and other sectors (One Health Platform) including IHR contact point and Headquarters.
- Institutionalization of IHR TWG / Coordinating Committee.
- Defining roles and responsibilities of each sector in the IHR TWG / Coordinating Committee.
- SOPs for communication and coordination between NFP and identified sectors.

Antimicrobial resistance

Introduction

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

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

Target

Support work coordinated by FAO, OIE and WHO to develop an integrated global package of activities to combat antimicrobial resistance, spanning human, animal, agricultural, food and environmental aspects (i.e. a One Health approach). Each country has: (i) its own national comprehensive plan to combat antimicrobial resistance; (ii) strengthened surveillance and laboratory capacity at the national and international levels following international standards developed as per the framework of the Global Action Plan; and (iii) 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.

Zambia level of capabilities

In 2017 Zambia produced a Multisectoral National Action Plan (NAP) on antimicrobial resistance. The plan was developed by a multidisciplinary team with representatives from human health, agriculture, the environmental sector, academia, regulatory bodies, civil society, planning and finance authorities. The NAP follows the five strategic objectives outlined in the WHO Global Action Plan.

Zambia enrolled in the WHO Global Antimicrobial Resistance Surveillance System (GLASS) in 2016. GLASS encourages countries to enrol even if they have only a single surveillance site that can provide good quality data. All the priority pathogens recommended by the GLASS can be tested in a single surveillance site, the University Teaching Hospital (UTH). This site participates in a proficiency testing programme organized by WHO (AFRO). In addition to UTH, the Chest Diseases Laboratory also performs susceptibility testing on isolates from cases of tuberculosis. GLASS will initially collect data from isolates from humans but will later expand to collect data from isolates from animals.

In the animal health sector, antimicrobial susceptibility testing is done at the University of Zambia School of Veterinary Medicine and Central Veterinary Research Institute.

The Ministry of Health/ National Public Health Institute is currently assessing laboratory capacity to perform antibacterial susceptibility testing. This assessment is expected to be completed by September 2017. The plan is to use the findings of the assessment to increase the number of sites conducting AMR surveillance with the goal of having at least one site in each of the 10 provinces.

The current version of the national Infection Prevention and Control Guidelines was produced in 2016. Topics related to antimicrobial stewardship are addressed in the NAP. There are national treatment guidelines which encourage the use of appropriate agents. Although there are laws regulating access to

antimicrobials these are not always enforced and unregulated access to antimicrobials in human health and animal health sectors remains a problem.

Recommendations for priority actions

- Improve human resources and infrastructure to boost laboratory capacity for AMR testing for both human and animal health.
- Strengthen quality management systems in the laboratories performing antibacterial susceptibility testing in the human and animal health sectors.
- Set up more surveillance sites for AMR and strengthen the AMR surveillance system for human and animal health.
- Improve awareness of the importance of appropriate use of antimicrobials among health care workers, veterinary workforce, and the public.
- Promote the implementation of Infection Prevention and Control (IPC) guidelines in healthcare facilities.

Indicators and scores

P.3.1 Antimicrobial resistance detection – Score 4

Strengths/best practices
- There is strong political commitment to address the challenge of antimicrobial resistance.
- The multisectoral National Action Plan has been produced.
- There is capacity at the University Teaching Hospital to test all the pathogens identified in the GLASS.
- National laboratories performing susceptibility testing are participating in external quality assessment schemes.

Areas that need strengthening/challenges
- The ability to perform antibacterial susceptibility testing is not widespread.
- Reagent shortages can limit the availability of testing.
- There is a lack of appropriately trained staff to perform susceptibility testing at subnational level.

P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens – Score 4

Strengths/best practices
- Zambia has enrolled in the WHO GLASS and will be reporting susceptibility data for the full range of pathogens requested by GLASS.
- The surveillance site has already been collecting data on resistance rates for many years.
- The Ministry of Health is already planning to enroll additional surveillance sites as capability improves.

Areas that need strengthening/challenges
- Lack of human resources, equipment and reagents is limiting the number of surveillance sites.
- There is limited data availability on antimicrobial consumption.

P.3.3 Health care-associated infection (HCAI) prevention and control programmes – Score 3

Strengths/best practices

- Revised National Infection Prevention and Control (IPC) guidelines have been produced.

- A national IPC policy, operational plan, and SOPs are available.

- Most health facilities have a functional IPC committee.

Areas that need strengthening/challenges

- Enforcement of IPC policies are not universal.

- Increase in awareness of the importance of IPC among health care workers and the community.

- Strengthening the system for monitoring health care associated infections.

P.3.4 Antimicrobial stewardship activities – Score 3

Strengths/best practices

- Relevant topics are addressed in the multisectoral NAP.

- There is national guidance on appropriate use of antibiotics.

- Antimicrobial stewardship assessments of patterns of antibiotic use are conducted in some facilities.

Areas that need strengthening/challenges

- There is insufficient awareness in the country on the appropriate use of antimicrobials.

- Laws regulating access to antimicrobials are not effectively enforced.

- There is a need for more research to better inform treatment guidelines.

PREVENT

Zoonotic diseases

Introduction

Zoonotic diseases are communicable diseases that can spread between animals and humans. These diseases are caused by viruses, bacteria, parasites and fungi carried by animals, insects or inanimate vectors that aid in its transmission. Approximately 75% of recently emerging infectious diseases affecting humans is of animal origin; and approximately 60% of all human pathogens are zoonotic.

Target

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

Zambia level of capabilities

Studies have estimated that at least six out of every ten emerging diseases are zoonotic in nature with the majority of these pathogens originating from wildlife hosts. Drivers of infectious disease emergence include abundance of wildlife, population growth, change in land use and climate change. Most, if not all of these drivers are present in Zambia. The country has a significant population of livestock, keeping communities that live in close proximity to wildlife, facilitating a human-livestock-wildlife interface that predisposes humans and livestock to zoonotic infections.

Zambia has in the recent past experienced a number of zoonotic disease outbreaks. These include anthrax in Western and Eastern provinces, zoonotic plague in Eastern and Southern provinces, Lujo virus disease, salmonella, rabies and human trypanosomiasis. The country also bears a significant endemic zoonotic disease burden from neglected zoonotic diseases like brucellosis and cysticercosis. The true burden and socio-economic impact of zoonotic diseases is however unknown. This is because of weak surveillance of zoonotic diseases characterised by underreporting and inadequate laboratory capacity especially in the animal health sector.

The animal health sector reports zoonotic diseases on immediate and monthly basis through a Ministry of Livestock and Fisheries system while public health system reports zoonotic diseases on immediate and weekly basis through the Integrated Disease Surveillance and Response (IDSR) platform. In addition to indicator-based surveillance, the public health system has a syndromic surveillance system (based on the IDSR platform). The animal health system does not have syndromic surveillance in place. Both structures do not have an event based surveillance system.

Anthrax, Plague, Lujo virus disease, Salmonella, Rabies, trypanosomiasis and Bovine tuberculosis are identified as the priority zoonotic diseases. However, the priority list was not developed through a collaborative decision-making process. The country does not have a formal One Health coordinating structure or guidelines on One Health implementation but there is a pilot One-Health initiative at national level.

Recommendations for priority actions

- Develop a strategic plan for zoonotic disease control and prevention which should include a priority zoonotic disease list developed using a multisectoral decision-making process.

- Carry out laboratory capacity assessment to guide the strengthening of diagnostic capacity for prioritized zoonotic diseases at national and sub-national levels.

- Evaluate and strengthen the existing surveillance system attributes to improve surveillance for priority zoonotic diseases.

- Carry out a human resource needs assessment for the veterinary workforce to identify human resource gaps.

- Establish a formal One Health platform to coordinate implementation of One Health including the prevention and control of zoonotic disease.

Indicators and scores

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

Strengths/best practices

- Both public and veterinary health sectors have an indicator based surveillance system that collects zoonotic disease data. Some of the priority zoonotic diseases are under surveillance in IDSR platform in the Ministry of Health and under the Ministry of Livestock and Fisheries system for the veterinary sector.

- Existence of a National Epidemic, Preparedness, Prevention, Control, and Management Committee that provides a platform for data sharing.

- There is a provisional list of priority zoonotic diseases that guides resource allocation in the animal health sector.

Areas that need strengthening/challenges

- There is a need to establish a formal zoonotic data sharing mechanism. The mechanism will lay out guidelines for sharing of surveillance and laboratory data.

- Data quality, timeliness and reporting rates are some of the surveillance attributes that were reported to perform sub-optimally. There is immediate need to evaluate the existing public health and veterinary sector zoonotic disease surveillance system to identify gaps and weaknesses in zoonotic disease surveillance.

- Improve laboratory diagnosis for zoonotic diseases both in human and animal health sectors.

P.4.2 Veterinary or animal health workforce – Score 4

Strengths/best practices

- The country has a graduate veterinary school and a number of diploma level animal health worker training institutions.

- Deployment of veterinarians to at-least 70% of all camps (smallest administrative units).

- University of Zambia is offering a OH graduate course.

- Zambia has a Field Epidemiology and Training Programme.

Areas that need strengthening/challenges

- There is a need to map the animal health human resource in Zambia to identify any possible gaps in deployment of animal health workers.

- An urgent need exists to include veterinarians in the Field Epidemiology training Programme (FETP) programme.

- Develop structured on-job training programme on IHR and OIE PVS (Performance of Veterinary Services) for the animal health workforce.

P.4.3 Mechanisms for responding to infectious and potential zoonotic diseases established and functional – Score 1

Strengths/best practices

- There has been joint response for a number of zoonotic disease outbreaks in the recent past. However, there are no formal guidelines or protocols for joint response.

- National Epidemic, Preparedness, Prevention, Control, and Management Committee provides a platform for multisectoral coordination.

Areas that need strengthening/challenges

- There is a need to establish a formal legal platform to coordinate agencies and the different levels of government involved in zoonotic event response.

- There is need to immediately develop zoonotic data sharing SOPs at national and sub-national level.

- Establish a continuous education programme on surveillance and zoonotic event outbreak response for public health and veterinary sector staff at all levels.

- There are no joint contingency plans for any zoonotic disease. Development of joint animal and human health contingency plans for at-least 4 top zoonotic diseases is a priority.

Food safety

Introduction

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

Target

Surveillance and response capacity among States Parties for food- and water-borne disease risks or events by strengthening effective communication and collaboration among the sectors responsible for food safety, and safe water and sanitation.

Zambia level of capabilities

Several internal and external assessments of the food control system have been conducted in Zambia over the past years, including one by the Food and Agriculture Organization (FAO) in 2012 and the OIE PVS Evaluation in 2008. This JEE process also provided the opportunity to make a rapid assessment of the situation through information sharing with agencies in charge and through site visits in Livingstone and Kuzungula districts.

Food safety is mainly under the mandate of the MoH. However, food safety controls are delegated to Local Government Authorities staffed with health inspectors. The Ministry of Fisheries and Livestock (MOFL) and the Ministry of Agriculture (MOA) are responsible for food safety related to primary production and the import of food.

The field visit conducted in Livingstone and Kuzungula districts found that:

- The unlimited access by farmers to all veterinary medicines at pharmacies implies that most local food of animal origin (egg, milk, and meat) are likely to contain chemical residues at levels higher than the Maximal Residue Limits set by the Codex Alimentarius Commission.

- There is weak collaboration between district veterinary officers and counci food inspectors.

- There is limited ante and post-mortem inspection of animals slaughtered (apart from one small-scale cattle slaughterhouse for which inspection was conducted by an experienced veterinary assistant). There was limited on-farm inspection in relation to primary production food safety, and an absence of procedures for the control of imported food.

The country is facing challenges to reach the main objectives of national food control systems, i.e. protecting public health by reducing the risk of foodborne illness and contributing to economic development by maintaining consumer confidence in the food system (both for domestic and international trade).

Introducing reforms aimed at modifying the systems from a top-down manner and to cover the entire country may be faced with challenges because of the current complex situation. It is therefore proposed that a reform be designed and implemented in a pilot territory (e.g. one province or one district). Such a reform

will need to be very carefully designed with involvement of all concerned parties (both public agencies and private stakeholders) and with some short-term international expertise. The selected province(s) for this pilot could be those where the demand for higher standards exists (e.g. areas with international tourism).

Recommendations for priority actions

- Establish or strengthen a food safety platform comprising of the veterinary sector and other food safety stakeholders.

- Design, implement, monitor, and evaluate a National Food Control System as per international guidelines.

- Finalize the Food Safety Act and the Food Safety Strategy and develop implementing rules and SOPs according to the new strategy. Obtain validation for the Food Safety Strategy from the concerned ministries.

- Produce, implement, and evaluate action plans, related to specific food safety aspects (e.g. residue, meat, hygiene).

- Include food borne events into the Health Management Information System (HMIS).

Indicators and scores

P.5.1 Mechanisms for multisectoral collaboration established to ensure rapid response to food safety emergencies and outbreaks of foodborne diseases – Score 2

Strengths/best practices

- Availability of legislation, some guidelines, and standards.

- Availability of laboratories and competences (FDL, Central Veterinary Research Institute, National Institute for Scientific & Industrial Research, University of Zambia, Zambia Bureau of Standards).

- Availability of Food Safety Focal Points and committees (INFOSAN, Codex, OIE, International Plant Protection Convention).

- Some collaboration through established committees at central level.

- Availability of some skilled human resources at all levels.

- Availability of a local training programme in Food Safety – MSc One Health Food Safety.

- Adoption of the One Health concept.

- Application of Good Manufacturing Practices (GMP) (Hazard analysis and critical control points (HACCP) and Good Agricultural practices) by some food industries.

- Certification for conformity of Food Business Operators.

- Food safety audits through qualified auditors.

- Inter and intra laboratory testing.

- Proficiency testing.

- Inspections and monitoring of foods.

- Export of honey to Europe and preparation to export of goat meat to Saudi Arabia.

Areas that need strengthening/challenges

- Regulations (modernizing the Food Safety Act).

- Food control management. The weak multisectoral collaboration induces a very fragmented management of food controls.

- Inspection services need strengthening. Although inspectors are present at the lowest administrative level (district), their working conditions prevent them from fulfilling their duties (confusing regulations, lack of SOPs, limited reporting, lack of collaboration between decentralised inspectors and government ones, lack of farm-to-fork approaches, insufficient resources).

- Laboratory services: food monitoring and epidemiological data. Investment should focus on a small number of laboratories with adequate equipment and staff and with a high number of analyses conducted. Adequate laboratory work will contribute to the upgrade of surveillance and risk profiling.

- Provision of sufficient finance for sample transportation.

- Information, education, communication and training. This will include training for producers including on HACCP and GMP for some of them.

Biosafety and biosecurity

Introduction

It is vital to work with pathogens in the laboratory to ensure that the global community possesses a robust set of tools – such as drugs, diagnostics, and vaccines – to counter the ever-evolving threat of infectious diseases.

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

Target

A whole-of-government national biosafety and biosecurity system with especially dangerous pathogens identified, held, secured and monitored in a minimal number of facilities according to best practices; biological risk management training and educational outreach 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 in place as appropriate.

Zambia level of capabilities

Zambia has established functioning national reference laboratories with technical and financial support from various partners including laboratories in University of Zambia (UNZA), University Teaching Hospital (UTH) and Central Veterinary Research Institute. In these national reference laboratories, a biosafety and biosecurity system is being implanted, which includes the containment of dangerous pathogens according to best practices. There is also the Biosafety Authority at the national level to oversee Institutional Biosafety Committees. In addition, there is a Scientific Advisory Committee to conduct a risk assessment when necessary. However, the system is still implemented in a fragmented way without much coordination and collaboration between different sectors. Zambia has a Biosafety Act, which was enacted in 2007. Other legislations such as Animal Health Act, Public Health Act, and Environmental Management Act include biosafety issues but biosecurity issues are not fully covered.

Biosafety and biosecurity training is being conducted in all national reference laboratories. All new staff are trained in biosafety and biosecurity. Good practices have also been established with adequate SOPs and guidelines. However, a comprehensive training needs assessment to identify training gaps has not been conducted. Training is also provided by each institution without a common curriculum. A train-the-trainers programme has not been established and external technical assistance is still necessary to build human capacity and infrastructure.

Recommendations for priority actions

- Assess and revise the existing legislations so that biosecurity issues are fully addressed.

- Prepare a national plan for the high containment laboratories, (BSL3) which should include the maintenance of existing laboratories, establishment of new laboratories and the proper accreditation of such laboratories.

- Conduct a training needs assessment for biosafety and biosecurity and develop a common curriculum and a train the trainer programme.

- Strengthen networking and collaboration among stakeholders in different sectors so that a whole of government biosafety and biosecurity system is fully implemented.

Indicators and scores

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

Strengths/best practices

- A biosafety and biosecurity system is in place in national reference laboratories.

- The Biosafety Authority has been established to oversee institutional biosafety committees and there is also the Scientific Advisory Committee to conduct a risk assessment.

- Dangerous pathogens are identified and contained in national reference laboratories according to best practices.

- Zambia has Biosafety Act (2007) and other legislations to address most of the biosafety issues.

Areas that need strengthening/challenges

- The current legislations do not fully cover biosecurity issues.

- The biosafety and biosecurity system is implemented in a fragmented way.

- Although biosafety and biosecurity practices are being implemented in national reference laboratories, such a system is still not in place in most of the peripheral laboratories.

P.6.2 Biosafety and biosecurity training and practices – Score 1

Strengths/best practices

- Biosafety and biosecurity training is being conducted in national reference laboratories.

- Biosafety and biosecurity practices with relevant SOPs and best practices are being implemented in national reference laboratories.

Areas that need strengthening/challenges

- Comprehensive training needs assessment has not been conducted.

- Technical assistance is needed to build human capacity and infrastructure.

- There is no comprehensive training with a common curriculum.

- There is no train-the-trainer programme.

- There is little academic training in institutions that train those who handle dangerous pathogens.

Immunization

Introduction

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

Target

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

Zambia level of capabilities

Zambia's immunization programme dates back to 1975. It provides voluntary immunization throughout the country. The routine immunization schedule now consists of BCG, OPV, DPT-HepB-Hib, PCV 10, Rota vaccines, Measles-Rubella (MR), Tetanus and diphtheria. The comprehensive Multi-Year Plan (2017-2021) for Immunization is aligned with the WHO Global Vaccination Action Plan. Immunization coverage for most vaccine-preventable diseases reaches over 90 % in 80 % of the regions. The country has a strategy for maintaining the cold-chain which is in place in more than 80% of the districts. Zambia is using a Reaching Every District (RED) approach to increase and sustain high levels of routine immunization.

Recommendations for priority actions

- Expand cold chain facilities in newly created districts and veterinary sector to cater for expanding needs.
- Conduct capacity building among staff on immunization supply chain and stock management.
- Support outreach programmes for hard to reach areas to increase the uptake of measles rubella second dose vaccines.
- Conduct health education campaigns to improve uptake of immunization and reporting of Adverse Events Following Immunization (AEFI) in the community.
- Improve data quality in terms of timeliness, completeness of reporting and denominator challenges.

Indicators and scores

P.7.1 Vaccine coverage (measles) as part of national programme – Score 4

Strengths/best practices
- Strong political will by the Government which allocates a substantial portion of its health budget to immunization.
- Presence of an Expanded Programme for Immunization (EPI) and the Multi-Year Plan (2017-2021) that is aligned to Global Vaccination Action Plan.
- EPI sub-committee and inter-agency committee available and active.
- Presence of Adverse Effects Following Immunization (AEFI) Committee.
- Use of Reaching Every District (RED) approach.
- Over 90% of the country's 12-month-old population has received at least one dose of measles vaccine.

Areas that need strengthening/challenges

- Inadequate access to hard-to-reach areas.

- Lack of strategies for AEFI reporting.

- Low uptake of measles second dose.

- Communication for routine immunizations.

- Denominator for vaccine coverage not validated.

- Target diseases for the animal sector not in tandem with vaccine preventable diseases in human health.

P.7.2 National vaccine access and delivery – Score 4

Strengths/best practices

- Cold chain delivery of vaccines is available in more than 80 % of districts.

- More than 80 % of health facilities have functional cold chain equipment.

- Good vaccine forecasting based on consumption rates.

- Dedicated budget for cold chain equipment and spare parts; and well-trained health workers.

- New technologies are introduced to increase efficiencies in the supply chain and programming (e.g. Logistimo, ZEIR, mvaccination, birth registration, village reach).

Areas that need strengthening/challenges

- Expand Cold chain maintenance and delivery to newly created health facilities and veterinary sector.

- Implement strategies for retaining sufficient staff for immunization, particularly in the rural areas.

- Attrition of trained and skilled cold chain officers.

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.

Zambia level of capabilities

Zambia operates a three-tier National Medical Laboratory System (district/provincial, regional and reference) with approximately 300 public health laboratory services of varying sizes and capabilities located mainly at the hospitals, health centres, research centres and private institutions, Defence, Mines, Non-Governmental Organization (NGOs) and Animal Health laboratories. At the apex, the laboratory system is supported by the University Teaching Hospital (UTH), Central Veterinary Research Institute, National Food and Drug Control Laboratory, National Chest Disease Laboratories, and the School of Veterinary Medicine (all located in Lusaka) and 5 Regional Veterinary Laboratories.

Recommendations for priority actions

- Map the existing national laboratory capacity and use the findings to strengthen the national public and regional public health laboratories so that they are sustainably-funded and fully-functioning,

- Dedicate adequate budget for sample transportation at the district health level and tap into the existing sample transportation system of partner supported programmes in line with Integrated Disease Surveillance and Response (IDSR).

- Strengthen the referral and supervisory systems in the existing national laboratory network and roll out Laboratory Information Management System (LMIS) to all provincial laboratories.

- Support Quality Management System (QMS) activities in the laboratory network and pilot them towards the WHO Stepwise accreditation system.

Indicators and scores

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

Strengths/best practices
- The availability of a network of laboratories that are carrying out core tests for disease pathogens under the IHR.

- The availability of 3 fixed functional BSL-3 laboratories and 1 mobile BSL-3 laboratory, which ensures unlimited advanced work/research on highly contagious pathogens (e.g Viral Haemorrhagic fever agents).

- Existence of National and External Quality Assurance Schemes (EQAS and NEQAS), human capacity development on Biosafety and Biosecurity (Biorisk) and implementation of Quality Management System (QMS).

Areas that need strengthening/challenges

- The overconcentration of the reference laboratories in Lusaka and limited capacity of the regional laboratories to conduct some tests.

- The non-utilization of private laboratories in Integrated Disease Surveillance and Response (IDSR) including reporting, overwhelming technical and financial support of partners in the operation of some of these laboratories, reagents and materials stock-outs.

- Strengthening of the regional and district laboratories to test for some diseases, involvement of private laboratories in IDSR, increased budget allocation to laboratories by the government and the sustainable commitment of the Government in the establishment and operation of the newly carved out National Public Health Institute.

D.1.2 Specimen referral and transport system – Score 2

Strengths/best practices

- The existence of a budget line for sample transportation at the government level.

- The existence of a mechanism and consistency of sample transportation in partner-funded programmes (HIV, TB, Malaria and Polio).

- Availability of institutional SOPs and equipment for specimen reception, storage, packaging and transportation at Reference Laboratories and on-going mapping of laboratories.

Areas that need strengthening/challenges

- Inadequate funding for specimen transportation which often results in some samples not being tested, delayed testing and prolonged turn-around-time.

- Insufficient sample transportation packaging often leading to improvisation, poor data harmonization between the laboratory and surveillance components and staff attrition.

- Insufficient budget allocation for procurement of sample packaging materials and sample transportation by the health districts.

- Gaps in sample collection, storage and transportation and periodic harmonization of data with the surveillance component.

- Institution of Basic Laboratory Information system across all network laboratories and continuous training and certification of critical mass of relevant staff on sample shipment/biorisk.

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

Strengths/best practices

- Some point of care test kits are available and are being deployed to the field for real-time screening and diagnosis of specific diseases in some specific programmes (e.g. polio, measles, tuberculosis, paediatric bacterial meningitis, Malaria, HIV).

- Algorithms exist for rapid testing for some diseases (e.g. HIV).

Areas that need strengthening/challenges

- Insufficient procurement of rapid test kits and lack of national validation on the supplied ones; and limited sites currently using rapid test kits.

- Roll-out of rapid test kits to sites, conduct of post-market validation and continuous validation of new kits and devices.

D.1.4 Laboratory quality system – Score 4

Strengths/best practices

- The Health Professions Council of Zambia was established by The Health Professionals Act 2009 and regulates practices for all health professional bodies, except nurses, in the country and has a policy, guidelines and SOPs for these.

- Laboratory premises licensing is mandatory for all laboratories and bi-annual inspection of licensed laboratories is documented.

- The council adapts the Education Commission for Foreign Medical Graduates and Association of Medical Councils of Africa standards. It has registered 542 private facilities and 1,132 public health facilities.

Areas that need strengthening/challenges

- The Health Professions Council of Zambia still operates under a make-shift (pre-fabricated) building.

- Inability to register health facilities immediately at the new districts created by Government.

- Accelerated completion of its permanent site, training and retraining of its workforce and complete registration of all health facilities in the new districts.

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 biosurveillance effort that facilitates early warning and situational awareness of biological events.

Target

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

Zambia level of capabilities

The surveillance systems for animal and human health in Zambia are separate. Presently, the Integrated Disease, Surveillance & Response (eIDSR) module is on the Country's Digital Health Information System (DHIS2) platform but it is yet to be activated. The country uses the Integrated Disease Surveillance and Response strategy for surveillance in human health, though implementation is limited to public, faith-based, and military facilities. The animal health system involves the use of camps within districts. In both cases, data is aggregated at the district level and sent to the province for human health and the national epidemiology unit for animal health. The human health sector further aggregates data at the provincial level before submission to national level. Lists of notifiable diseases for both animal and human health exist. Identified strengths include the establishment of Public Health Institute, on-going IDSR training, targeting public health professionals, Field Epidemiology Training programme (FETP) which was introduced in 2014, analysis of data and provision of regular health briefs to the public.

However, there are some challenges which include limited number of people trained in IDSR, delayed detection of outbreaks, staff attrition at facility level, limited Information & Communication Technology (ICT) tools, non-reconciliation of laboratory and surveillance data, non- involvement of Veterinarians in FETP and non-existence of syndromic surveillance for animal health.

Recommendations for priority actions

- Conduct a mapping of national surveillance capacities in the animal health sector and address the identified gaps.

- Finalize the development and roll out of the eIDSR module by DHIS2 and conduct mass training in IDSR at all levels.

- Procure ICT tools to facilitate timely capture and dissemination of surveillance data especially at health facility levels.

- Develop a syndromic surveillance system for animal health.

DETECT

Indicators and scores

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

Strengths/best practices

- Establishment of Zambia National Public Health Institute.

- Availability of DHIS2 platform.

- Trained Public health workforce.

- Laboratory confirmation of vaccine preventable diseases and quality assurance.

- Weekly Data analysis and reporting.

Areas that need strengthening/challenges

- Syndromic surveillance systems.

- Inadequate use of surveillance case definition.

- Limited laboratory confirmatory capacity.

- Few surveillance sentinel sites.

- Delayed reporting due to poor internet connectivity.

- Lack of transport and airtime and non-functional computers.

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

Strengths/best practices

- Existence of WHO IDSR and FETP Training packages.

- Integration of surveillance training into health profession training.

- Existence of eIDSR module on the DHIS2 Web based platform.

- Existence of communication channel of health information to the public.

- Regular data monitoring and analysis.

Areas that need strengthening/challenges

- Human and Animal Health surveillance electronic reporting systems.

- Nationwide eIDSR utilization.

- Capacity building on surveillance systems for human and animals.

- Limited ICT tools and training manpower.

D.2.3 Integration and analysis of surveillance data – Score 3

Strengths/best practices

- Surveillance data is reported for analysis regularly using the IDSR strategy for human health and monthly for animal health although with delays at times.

- Laboratory Information Systems in place in various hospitals.

- Availability of standardized forms and protocols developed through SADC/WHO.

- Availability of ad-hoc laboratory data sharing mechanisms.

- Laboratory Information Systems in place ensuring the lab-network is online.

DETECT

Areas that need strengthening/challenges

- MoH sharing of laboratory data with other Ministries/Agencies.

- Linkage of laboratory data to surveillance data.

D.2.4 Syndromic surveillance systems – Score 3

Strengths/best practices

- Zambia has syndromic surveillance systems in place to detect three or more core syndromes indicative for public health for the human health sector.

- The syndromic surveillance platform is being developed by the animal health.

- Availability of Influenza Surveillance Sentinel Sites, availability of mechanisms for data validation and feedback.

- Observance of lead times for sample collection and transportation.

- Data is being audited and verified.

Areas that need strengthening/challenges

- There is no mechanism in place for laboratory data sharing, hence, laboratory data are not linked to surveillance data.

DETECT

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.

Zambia level of capabilities

Zambia is one of the 196 States Parties that are signatories to the IHR. As part of the requirement for implementation of the IHR, the Zambian government has designated the MOH as their national IHR focal point. Reporting of public health events of international concern is done by the MOH to WHO while that of animal health (zoonoses) is done by Ministry of Fisheries and Livestock (MFL) to OIE. The country also submits the IHR annual monitoring report to WHO every year. Both MOH and MFL have subscribed to the Event Information System to facilitate information sharing. However, information sharing between IHR NFP and OIE delegates is done on ad-hoc basis as there is no formal process in place. Although there is some level of communication between the NFP and other IHR stakeholders this is suboptimal and would require strengthening and formalization of the process using SOPs.

Recommendations for priority actions

- Develop SOPs to strengthen formal collaboration and communication mechanism for IHR NFP with lower levels and stakeholders.

- Finalize development of protocols and legislation governing IHR and OIE reporting to ensure timely and accurate reporting of public health events.

- Build capacity for IHR NFP and other IHR stakeholders including other relevant sectors outside health on IHR reporting.

Indicators and scores

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

While there was evidence of reporting of relevant zoonotic disease to OIE, the same could not be said for the use of the IHR decision tool in reporting events to WHO.

Strengths/best practices

- Availability of the National Livestock Epidemiology Information Centre.

- Availability of Technical Working Group (Zoonoses).

- IHR national focal point and OIE delegate designated.

Areas that need strengthening/challenges

- Improvement in communication between IHR NFP and other IHR stakeholders.

- The use of IHR decision tool to report public health events of international concern.

- Capacity building for IHR NPF and other IHR stakeholders.

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

Strengths/best practices

- Availability of code of practice for Points of Entry.

- Review process of the Public Health Act and Food Safety Legislation.

- Conducted a table and field simulation exercise on avian influenza in 2009.

Areas that need strengthening/challenges

- Domestication of IHR (2005) into national Legislation and policies to strengthen the NFP.

- Integration of reporting systems among stakeholders.

- Establishment of protocols and processes for IHR/OIE reporting.

- Capacity building of all stakeholders on IHR/OIE reporting.

Workforce development

Introduction

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

Target

States Parties with 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).

Zambia level of capabilities

The Zambian MOH is undergoing restructuring following the recent decentralization policy to strengthen health systems and services using the Primary Health Care (PHC) approach and the set-up of the National Public Health Institute to coordinate priority public health activities and resources. Zambia will also host the Collaborative Regional Centre for the South African Development Community (SADC) sub region of the new African Centre for Disease Control (ACDC).

The workforce of the Veterinary Sector will also undergo some changes linked with the set-up of 10 provincial laboratories and the newly acquired mandate for inspection at slaughterhouses for export of goats.

The current human resource strategies do not adequately cater for the requisite public health workforce capacity to implement IHR core capacity requirements. Providing lower levels with well-trained health and veterinary officers remains a challenge. The Field Epidemiology Training Programme (FETP) and other courses will contribute to solving these issues.

Recommendations for priority actions

- Produce and fund annual action plans for upgrading human resources for public health purposes in both MOH and MFL.

- Increase the number of staff trained in epidemiology and the diversity of profiles.

- Develop basic and intermediate Field Epidemiology Training Programme or similar courses in addition to the advanced course.

- Continue upgrade of the veterinary curriculum (OIE Vet Education standards).

Indicators and scores

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

Strengths/best practices

- Through the University of Zambia, initial training and continuing education is organized for various positions and skills for both public health and veterinary public health.

- The MoH and the Veterinary Sector are therefore able to recruit skilled staff and upgrade core capacities.

- The MoH has an annual programme for continuing education, enabling the staff to specialize in different disciplines in line with their career paths. Distribution of health workers throughout the country is fair.

- There is strong political will to open additional positions especially for field levels.

Areas that need strengthening/challenges

- Cross-agency cooperation between staff in some districts or provinces remains limited.

- Funding of continuing education remains a constraint to fully implement the HR strategy.

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

Strengths/best practices

- The Ministry of Health and the US Centres for Disease Control and Prevention (CDC), launched the Zambia Field Epidemiology Training Programme (ZFETP) in 2014. The level one programme is a 6-month in-service training that combines didactic and practicum training in which the trainee is grounded in the academic basics of public health and epidemiology, and competency projects that address key public health priorities. It is expected that in the 3rd cohort 15 MoH employees will be trained from October 2017 to May 2018.

- The country now owns the programme, with MoH as the supervisor

- The graduates from the 1st and 2nd cohorts are working in several provinces throughout the country.

- Epidemiology training is also provided within recent additional initiatives like the One Health Master Course and the Food Safety master course at the University of Zambia.

Areas that need strengthening/challenges

- It will take another 5 to 10 years of the FETP running to meet the optimal target of 80 field epidemiologists trained in Zambia (1 per 200 000 inhabitants).

- Although some financial contribution has been secured from the national budget, additional resources are needed. It is expected that the FETP will be partially funded by the UK from 2018 to 2023.

- There is an inadequate number of mentors/supervisors for the residents and an insufficient number of field placement sites.

- The FETP will also need to enroll candidates working for agencies outside MoH and from the Veterinary Sector.

D.4.3 Workforce strategy – Score 2

Strengths/best practices

- Both the MoH and the Veterinary Sector have produced strategies to upgrade their workforce quantitatively and qualitatively.

- MoH produced its "National Human Resources for Health Strategic Plan" for the period 2011-2015 and 2016-2021.

- The OIE PVS Gap Analysis report (2009) includes accurate proposals for human resources in order for the Veterinary Sector to get closer to the OIE international standards.

- A follow-up evaluation of the Veterinary Sector will be conducted by OIE in 2018 and will provide an updated status of the workforce.

- There is the recruitment and placement of staff at all levels and the remuneration of health workers with the support of central government & Ministry of Finance (MoF). This includes the induction and orientation of the newly recruited staff.

- The biannual request to the Treasury Authority (TA) for salaries.

- The provision of technical support in Human Resource related issues to all levels and appropriate skills of health workers.

Areas that need strengthening/challenges

- For both the MOH and the veterinary services, the Human Resource strategy must be assessed and revised to accommodate the requirements of IHR and OIE standards (human resources mapping).

- New strategies will also need to pay attention to the changes introduced by the recent decentralization policy where Local Government Authorities will have more responsibility at district levels for primary health activities.

- In the future, the Veterinary Sector will particularly need to increase the size of its central veterinary public health division and open new positions for veterinarians and technicians to be dedicated to veterinary public activities.

DETECT

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.*

Zambia level of capabilities

A multi-hazard national public health emergency preparedness and response plan to meet IHR core capacity requirements has been drafted (at technical level) through the ZNPHI and guides preparedness efforts in the country, although it still needs to be finalized and approved by the political leadership. A structure for preparedness is available at all levels: national, provincial, district and health facilities and the Emergency Preparedness and Response (EPR) committee structure is used for coordination. Rapid Response Teams are available at all levels of the structure and the Public Health Emergency Operation Centre (PHEOC) has been established and coordinates response to public health events although it is not fully operational. Emergency preparedness is also linked with national disaster management efforts under the Disaster Management Mitigation Unit (DMMU) under the vice president's office. The DMMU coordinates national preparedness to all disasters including public health events in coordination with specific line ministries and is the main channel through which financial resources are mobilized for sectors. Within the health sector, public health events cover the full range of all hazards (all hazards approach) which marries well with the DMMU coordination efforts.

The country has embraced a holistic all-of-society approach and the ZNPHI coordinates with all relevant partners to ensure preparedness to all hazards. The country aspires to strengthen coordination and collaboration with other sectors, for instance, in areas such as surveillance between animal and human health; civil aviation and aerodrome; chemical; and technological hazards; in view of the country's risk profile that includes mining, floods, droughts, and chemical spillages, among others. The country would also like to enhance their port health unit through training of staff and putting in place standard operating procedures and resources for detection of infectious diseases as well as bio-safety and bio-security. A major challenge for preparedness efforts in the country is the vast size of the country and the terrain which is mountainous while some populations live on islands. There are four big lakes in Zambia-Tanganyika, Mweru, Bangweulu, and Kariba; and 4 big rivers with limited transport infrastructure limiting communication and access.

Partners available in the country that the ministry of health is collaborating with include:

- DFID-Technical and financial support in Epidemic Preparedness;

- Ministry of Agriculture, Food and Fisheries -Food security;

- WHO-Technical support in public health issues, financial support;

- FAO-Technical support, financial support, food security;

- World Bank-Financial and technical support in Water, sanitation, system strengthening, health care waste management;

- JICA-Technical support and financing in Port health, water, sanitation; and

- CDC: Technical support, Surveillance, response, prevention of diseases.

The country has been conducting risk assessment and has been supported by WHO to conduct a vulnerability risk assessment however, this has not been coordinated with all stakeholders in a multi-sectoral way. A national risk assessment is planned to identify potential urgent public health events and available resources based on exchanges with experts' opinion and interaction with other countries and stakeholders.

Recommendations for priority actions

- Conduct multi-hazard mapping and risk assessment of prioritized public health risks.

- Update, finalize and implement a multi hazard and multi-sectoral national public health preparedness and response plan.

- Establish contingency funds for public health priority emergencies.

- Establish mechanism for coordinating the One Health agenda at all levels.

- Strengthen multi-sectoral collaboration in public health emergency preparedness and build partnerships with other stakeholders.

Indicators and scores

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

Strengths/best practices

- Structure for preparedness is available at all levels of care.

- Coordination capacity available at national, provincial and district levels and within the MoH.

- Creation of the public health emergency operation centre.

- DMMU has a multi sectoral committee that plans and mobilizes resources for emergencies and efforts aligned with national disaster management and mitigation measures.

- Epidemic Prevention, Preparedness and Control Committees established at national, province and district levels.

Areas that need strengthening/challenges

- Finalization and official endorsement of the multi-hazard health emergency preparedness and response plan.

- Institutionalize the NEPPC&MC at all levels to ensure compliance and functionality.

- There is need to include the NEPPC&MC committee in the on-going review of the Public Health Act.

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

Strengths/best practices

- A national risk assessment is conducted every year, although not through standard tools and processes, before a plan is developed to mitigate risks through the DMMU.

- Each district has an Emergency Preparedness and Response (EPR) Plan for prevention, preparedness, and control through the district NEPPC&MC and under the coordination of the DMMU, although this is not formalized through the national multi-hazard and multi-sectoral preparedness and response plan.

- A draft National Public Health plan for prevention, preparedness and response exists.

Areas that need strengthening/challenges

- National risk assessment to identify priority hazards list and resource mapping using a multi-sectoral consultative approach is yet to be conducted.

- Inadequate equipment, human resources, and infrastructure for screening to identify public health threats and isolation at points of entry.

- Mobilization of resources to implement the IHR Plan need to be enhanced.

RESPOND

Emergency response operations

Introduction

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

Target

Country with public health emergency operations centre (EOC) functioning according to minimum common standards; maintaining trained, functioning, multisectoral rapid response teams and "real-time" biosurveillance laboratory networks and information systems; as well as trained EOC staff capable of activating a coordinated emergency response within 120 minutes of the identification of a public health emergency.

Zambia level of capabilities

Zambia has recently established the ZNPHI which is responsible for coordination of all emergency response to public health events. Although the Public Health Emergency Operation Centre (PHOEC) is not fully operational, the physical infrastructure and basic equipment is in place. The country is currently in the process of setting up a proper EOC with support from CDC Atlanta. As part of efforts to operationalize the EOC, the ZNPHI has organized a learning trip to Mozambique and the African Union EOC for its staff. The PHOEC has four dedicated and trained staff. It has basic communication equipment but no dedicated hotline that people or clinicians could call for help when dealing with a public health threat. Training on the Incident Management System (IMS) has been conducted recently for some staff at the national level but staff at the lower levels have not been trained. Structures for emergency response are available from national to district level exist, however, functionality is an issue. Rapid Response Teams have been trained but some are no longer functional and some were trained a long time ago. There is therefore a need to build capacity at national, provincial and district level to ensure structures are functional. Plans and SOPs for emergency operations are currently under development.

Recommendations for priority actions

- Finalize SOPs and test the SOPs through table top exercises.

- Define Incident Management System and Concept of Operations for the activation of EOC.

- Build capacity for emergency response at all levels and increase the number of personnel with required skills for emergency response especially at the lower levels.

Indicators and scores

R.2.1 Capacity to activate emergency operations – Score 2

Note: Capacity is available at national and lower levels however, EOC is not available 24/7. Although EOC staff are trained on EOC management, SOPs are still in draft form and need to be finalized.

Strengths/best practices

- Establishment of National Public Health Institute.

- Trained and dedicated EOC staff at national level able to coordinate emergency response.

- Availability of physical structure and basic equipment for PHEOC.

- Public Health Act guiding emergency operations and activation.

Areas that need strengthening/challenges

- Currently, the responses are limited to disease outbreaks and are not extended to other sudden disturbances.

- Improve coordination and collaboration with stakeholders and partners.

R.2.2 EOC operating procedures and plans – Score 1

EOC plans and procedures for Incident Management System (IMS) or its equivalent are yet to be put in place.

Strengths/best practices

- Availability of the DMMU National Emergency Plan.

- Guidelines on cholera & Typhoid management in place.

- EOC staff trained in Incident Management Systems.

Areas that need strengthening/challenges

- Need for more guidelines and procedures in all emergency operations.

- SOPs are in Draft and need developing.

- Guidelines in new emerging issues.

- Limited coordination and collaboration with all stakeholders for health (One Health concept).

R.2.3 Emergency operations programme – Score 1

Strengths/best practices

- The ZNPHI EOC acts as secretariat for epidemic preparedness and response riding on the mandate of the DMMU act, in terms of coordination of stakeholders in public health emergencies.

- National level staff trained in Incident Management Systems.

- Trained National Rapid Response Team in place.

Areas that need strengthening/challenges

- Capacity building at lower levels (provincial and district) in emergency response operations.

- Establishment of a toll free line and a call centre.

- Inadequate transport at the subnational levels for Rapid emergency response.

RESPOND

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

Case management guidelines are available for only priority epidemic prone diseases.

Strengths/best practices

- National Public Health Emergency Preparedness and Response Plan 2016-2021.

- Patient referral and transportation mechanism with adequate resources (designated ambulances and SOPs) available.

- Political will by the government and support for emergency response and IHR implementation.

- Isolation facility for infectious diseases built in Mwembeshi.

Areas that need strengthening/challenges

- Case management guidelines for all priority diseases not available.

- Limited SOPs (accordingly to national or international guidelines) for the management and transport of potentially infectious materials and patients at the local level and points of entry.

- Not all SOPs are available.

- Uncoordinated activities for epidemic preparedness and response committees.

- Inadequate skilled staff for timely response to, and manage of, emergencies and outbreaks (One Health).

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

Country conducts a rapid, multisectoral response in case of a biological event of suspected or confirmed deliberate origin, including the capacity to link public health and law enforcement, and to provide and/or request effective and timely international assistance, such as to investigate alleged use events.

Zambia level of capabilities

Linking public health and security authorities is critical to facilitate the joint assessment, investigation and response to public health threats that might be deliberate in nature. Security authorities need to be embedded within the public health continuum because sometimes it is difficult to demarcate between public health threat that is deliberate in nature and those occurring naturally. The Zambian Public Health Act also provides the power to isolate/detain persons, cargo, containers, and postal parcels suspected of harbouring infectious disease. During disasters, the Disaster Management Act is used to coordinate activities linking various sectors including defense, police, and other security authorities. Also, the government has the National Biosafety Authority mandated to deal with all biological events which can be deliberate in nature.

Recommendations for priority actions

- Develop MOUs and SoPs between health, defence, security and law enforcement sectors at appropriate levels of government and with relevant regional and international organizations.

- Conduct joint training, joint simulations and epidemiological investigation and response at regional and national levels for public health and security authorities.

- Develop mechanisms for information sharing between public health and security authorities.

Indicators and scores

R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) linked during a suspect or confirmed biological event – Score 1

Strengths/best practices
- The country has a system in place to contact the security authorities to assist with any event requiring law enforcement.

- The DMMU within the Office of the Vice President provides sector coordination during disasters.

- There is a Biotechnology and Biosafety Policy.

- The Disaster Management Act and Public Health Act Cap 295 provide linkages between Public Health and Security Authorities.

- There is a National Aeronautical Search and Rescue Organisation established under the Civil Aviation Act No.7 of 2012 section 78 that coordinates multi sectoral aviation mass casualty event responses.

Areas that need strengthening/challenges

- For effective collaboration and accountability between public health and security authorities Zambia should develop MoUs, SoPs and protocols.

- Enhance information sharing between public health and security authorities.

- Operationalization of existing emergency response plans.

- Joint training between the different sectors, including law enforcement and security.

- Simulation exercise should be collaborated among stakeholders and held regularly.

- Harmonization of emergency response plans for the public health and security authorities.

Medical countermeasures and personnel deployment

Introduction

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

Target

National framework for transferring (sending and receiving) medical countermeasures, and public health and medical personnel from international partners during public health emergencies.

Zambia level of capabilities

Zambia has available trained health personnel who can support international response to public health emergencies. There have also been situations in neighbouring countries such as the cholera outbreak in Zimbabwe when health staff from Zambia went to support the response efforts. The country has also benefitted from technical support in the past such as during the 2010 measles outbreak when deployment of external experts was facilitated by organizations such as CDC and WHO.

The Ministry of Health has dedicated medical logisticians who track medical supplies and maintain a stockpile of medical countermeasures (MCM) for national use during a public health emergency. The Medical Stores Limited has a number of running contracts for the supply of medical supplies but is also dedicated to procuring medical supplies and MCM for the country should the need arise, such as a public health emergency.

The regulations for the 2010 Animal Health Act have been developed and make provision for receiving and sending medical countermeasures. The regulations are currently with the Ministry of Justice for their input before publishing. However, in the case of the Ministry of Health, there is no formal policy in place for sending or receiving of international medical countermeasures during a public health emergency. Consequently regulatory, logistic and security concerns related to sending, receiving, and distributing medical countermeasures during a public health emergency have not been addressed. The country is not signatory to any regional/international countermeasure sharing, procurement and distribution agreements.

When the need arises, on ad hoc basis, there is international deployment of health personnel. There is however no plan in place that identifies procedures and decision-making related to sending and receiving health personnel during a public health emergency. Consequently, training criteria and standards, regulatory and licensure, liability, safety, and financial concerns for health personnel during an international deployment are not laid out. Training procedures and materials have not been developed to orient arriving personnel into the country. Zambia has also not signed any regional/international personnel deployment agreements.

Considering the ongoing revision of the Public Health Act and the inauguration of the ZNPHI, there is a window of opportunity to incorporate legislation relevant to medical countermeasures.

RESPOND

Recommendations for priority actions

- Include medical countermeasures in the Public Health Act revision.

- Develop National Countermeasures and Personnel Deployment Plan and SOPs.

- Formalize regional and international partnerships related to medical countermeasures and personnel deployment, procurement, and distribution.

- Conduct table –top exercises for sending and receiving medical countermeasures.

Indicators and scores

R.4.1 System in place for sending and receiving medical countermeasures during a public health emergency – Score 1

Strength/best practice

- None identified.

Areas that need strengthening/challenges

- There is no plan or guiding procedures in place that address MCM.

- The country is not participating in any international agreements related to MCM.

R.4.2 System in place for sending and receiving health personnel during a public health emergency – Score 1

Strengths/best practices

- The country has trained personnel that can be deployed to support international public health emergencies and there is institutional memory of international deployment taking place.

Areas that need strengthening/challenges

- There is no national framework or formal systems that govern international deployment of health personnel and there have been no opportunities recently to test for scenarios requiring deployment and surge staffing.

Risk communication

Introduction

Risk communications should be a multilevel and multifaceted process which aims at helping stakeholders define risks, identify hazards, assess vulnerabilities, and promote community resilience, thereby promoting the capacity to cope with an unfolding public health emergency. An essential part of risk communication is the dissemination of information to the public about health risks and events, such as disease outbreaks. For any communication about risk caused by a specific event to be effective, the social, religious, cultural, political, and economic aspects associated with the event should be considered, including the voice of the affected population.

Communications of this kind promote the establishment of appropriate prevention and control action through community-based interventions at individual, family, and community levels. Disseminating the information through appropriate channels is essential. Communication partners and stakeholders in the country need to be identified, and functional coordination and communication mechanisms should be established. In addition, the timely release of information and transparency in decision-making are essential for building trust between authorities, populations, and partners. Emergency communication plans should be tested and updated as needed.

Target

State Parties use multilevel and multifaceted risk communication capacity. Real-time exchange of information, advice and opinions between experts and officials or people who face a threat or hazard (health or economic or social wellbeing) to their survival, so that informed decisions can be made to mitigate the effects of the threat or hazard and protective and preventive action can be taken. This includes a mix of communication and engagement strategies, such as media and social media communications, mass awareness campaigns, health promotion, social mobilization, stakeholder engagement and community engagement.

Zambia level of capabilities

Zambia has made significant progress as far as risk communication for public health risks is concerned. There is the established DMMU housed within the Office of the Vice President. Similarly, there is a newly created Department of Health Promotion, Environment and Social Determinants which is mandated with risk communication activities. During epidemics, this department provides daily updates regarding public health events to the media. Also, there is a Multi-Hazard National Disaster Management Policy 2015 where one component is risk communication. This technical area is of high priority in the country to the extent that each line ministry has a risk communication unit which coordinates specific sector risk communication activities. The country also has a National Epidemic Preparedness and Prevention Committee which has a risk communication sub-committee. The committee meets regularly to discuss various issues pertaining to risk communication. These meetings are chaired by the MoH and co-chaired by Minister of Local Government and Housing. To respond to rumours and address misconceptions in the community, the MoH utilizes a variety of methods including media briefings, twitter page, WhatsApp, and face book. The government is always under alert to correct any inconsistency in messages that emanates from the community. The country has community radio stations in all provinces which are used for disseminating Social and Behaviour Change Communication (SBCC) messages to the public during epidemics and events. These messages are always translated into the local languages used in various provinces. Additionally, there are Community Based Volunteers who are readily available for the dissemination of door to door SBCC messages. There is a need to strengthen the communication and coordination among internal and external partners including legalization of Neighbourhood Health Committees.

Recommendations for priority actions

- Review and update TORs for the National Epidemic Preparedness and Prevention Risk Communication Sub-Committee.

- Develop an all-hazard public health risk communication plan to enhance collaboration and coordination among relevant stakeholders.

- Strengthen the communication and coordination between internal and external partners to create an effective risk communication mechanism.

- Legalize neighbourhood health committees.

Indicators and scores

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

Strengths/best practices

- Presence of the National Epidemic Preparedness Prevention and Control risk communication sub-committee and the newly created Department of Health Promotion, Environment, and Social Determinants.

- Availability of NEPPC&MC quarterly meetings which are chaired by the Minister of Health and co-chaired by Minister of Local Government and Housing.

- Presence of risk communication unit in each line Ministry including the Ministry of Animal and Fisheries.

Areas that need strengthening/challenges

- The sub-committees including that for risk communication under NEPPC &MC need strengthening as they are only active and functional during outbreaks.

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

Strengths/best practices

- There is a National Health Promotion Technical Working Group which coordinates all the partners involved in risk communication, that has quarterly meetings.

- The presence of spokespersons in the MoH is commendable.

Areas that need strengthening/challenges

- Limited budget to fund the National Health Promotion Technical Working Group.

R.5.3 Public communication – Score 4

Strengths/best practices

- Presence of Community Based Volunteers who are always readily available for door to door SBCC messages.

- Good relationship with media houses who are dependable partners in disseminating SBCC messages to the public.

- Presence of community radio station in all the provinces which are used for messages to the public during epidemics and events.

- Social and Behaviour Change Communication messages are always translated into the local languages used in various provinces.

- Daily briefing with the media during public health threats and risks.

Areas that need strengthening/challenges

- No documentation of media research to determine message reach among target audience (impact assessment).

R.5.4 Communication engagement with affected communities – Score 3

Strengths/best practices

- Presence of community structures like Neighbourhood Health Committees, Safe Motherhood Action Groups and Community Based Volunteers.
- Presence of Community Health Assistants, Community based partners, religious leaders, and trained community leaders.

Areas that need strengthening/challenges

- Legal framework and standardization of remuneration for the community based volunteers.

R.5.5 Dynamic listening and rumour management – Score 4

Strengths/best practices

- The country has a strong system for managing rumours.
- The system involves MoH spokesperson and media houses in regular meetings.
- Rumours are addressed with correct information in local districts as well as door-to-door information and through drama.
- The country has a strong system for managing rumours.
- The system involves the MoH spokespersons and media houses in regular meetings.

Areas that need strengthening/challenges

- Need for utilization of local language in certain settings.
- Increased involvement of Media in rural areas.

OTHER IHR-RELATED HAZARDS AND POINTS OF ENTRY

Points of entry

Introduction

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

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

Zambia level of capabilities

Zambia shares borders with eight countries. The country has 4 International airports namely Kenneth Kaunda; Harry Mwanga Nkumbula; Simon Mwansa Kapwepwe and Nfuwe; 3 Water crossing –Kazungula, Luangwa and Mpulungu Port; and 17 Ground-crossing namely Chirundu, Kariba, Livingstone, Kazungula, Katima Mulilo, Chavuma, Jimbe, Kasumbalesa, Tshisenda, Mokambo, Sakania, Chembe, Nakonde, Lundazi, Mwami (Chipata), Chanida (Mozambique) and Luangwa. These points of entry are directly linked to districts which are responsible for receiving surveillance information, supervision, and provision of resources for PoE operations. Zambia is required under the IHR to assess the core capacity of, and designate, points of entry for developing core capacities. A comprehensive core capacity assessment has not been conducted. The JEE Team visited 4 points of entry including Livingstone and Kasungula water crossing borders and the international airports in Livingstone and Lusaka. Temperature screening was being conducted through infrared thermal scanner at Kasungula PoE but not at Livingstone Airport. Yellow fever vaccination is not provided to travellers from yellow fever endemic countries. Water and food safety monitoring are being implemented. There is inadequate space for interviews of ill travellers and no public health emergency contingency plan. The animal inspectors are available on call in case there are animals requiring clearance.

Recommendations for priority actions

- Conduct assessment for Designation of Points of Entry and develop a National Action Plan for implementation of identified gaps for core capacities.
- Develop Public Health Contingency Plans for PoEs and incorporate them into Points of Entry (Civil aviation, Ports, and Ground crossing) Emergency Response Plans.
- Establish funding mechanisms and cost sharing schemes for port health services.
- Build the capacity of PoE staff in port health operations and management.
- Develop guidelines and relevant SOPs to support implementation of public health measures at PoEs.

Indicators and scores

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

Strengths/best practices

- District Epidemic Preparedness, Prevention, and Control meetings where PoE staff are the members.

- Water quality monitoring in some points of entry including Kazungula Border.

- Screening of temperature and collaboration with immigration through compliance cards at Kazungula border.

Areas that need strengthening/challenges

- Capacity building of staff for effective implementation of port health activities.

- Availability of relevant guidelines, protocols, and SoPs to support implementation of public health measures at points of entry.

- Linkage of port health with key agencies including integration within the Electronic Window System (Automated System for Customs Data - ASYCUDA).

- Inadequate tools and equipment to facilitate implementation of port health services.

- Conduct air crash table-top and drill/simulation exercises periodically to test preparedness for public health events.

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

Strengths/best practices

- Presence of draft Airport Public Health Emergency Plan.

- Availability of Rapid Response Teams at district level where PoEs are located.

- A draft PHE operation plan has been developed and is housed at the National Institute of Public Health which is also linked to points of entry.

Areas that need strengthening/challenges

- Develop public health emergency plans and integrate within points of entry plans.

- Establish funding to support the implementation of port health activities.

- Strengthen the referral system (availability of ambulances at all POE).

- Strengthen an effective communication mechanism/system.

Chemical events

Introduction

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

Target

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

Zambia level of capabilities

Zambia Environmental Management Agency (ZEMA) is a leading agency for chemical events. Response plans for chemical events have been established, which include the Environmental Emergency Reponses Plan under ZEMA and the National Public Health Emergency Preparedness and Response Plan under MOH. ZEMA has developed the national profile on chemical safety and conducted a baseline assessment for Chemical Observatories. ZEMA is also implementing the Global Harmonised System (GHS) of chemical identification and labelling and the Transportation of Dangerous Goods (TDG). However, there is still limited laboratory capacity to identify all priority chemicals; and human resources and financial support for chemical management are inadequate. Although a feasibility study for establishment of the poison centre has already been conducted, the centre has not been established. To detect and respond to chemical events, coordination and collaboration between different government agencies including ZEMA, MOH and Ministry of Agriculture are necessary. However, a proper coordination mechanism between different agencies is still not in place.

Recommendations for priority actions

- Establish and operationalize a national poison centre.
- Establish coordination mechanisms among stakeholders in chemical events surveillance and response.
- Build laboratory capacities so that all priority chemicals can be confirmed in a timely manner.
- Build capacity in chemical surveillance and management in relevant agencies.
- Develop indicators to monitor health ailments associated with chemical hazards.

OTHER

Indicators and scores

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

Areas that need strengthening/challenges

- Laboratory capacity to detect priority chemicals is still limited and human resource and financial support for chemical management are also not adequate.

- There is no functioning poison centre and protocols or guidelines for case management of chemical hazards and monitoring framework for chemicals and health outcomes are not available.

CE.2 Enabling environment in place for management of chemical events – Score 3

Strengths/best practices

- The legislation and emergency response plans for chemical events are available and ZEMA is also implementing GHS of chemical identification and labelling and TDG.

Areas that need strengthening/challenges

- There is no proper coordinating mechanism between different government agencies for chemical safety.

Radiation emergencies

Introduction

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

Target

States Parties with surveillance and response capacity for radiological and nuclear hazards/events/ emergencies. This requires effective communication and collaboration among the sectors responsible for radiological and nuclear emergency management.

Zambia level of capabilities

The Radiation Protection Authority (RPA) was established by the Ionising Radiation Protection Act, No 16 of 2005 and is the national competent authority to deal with all matters relating to radiation protection including radiation monitoring in the country. The RPA has the mandate to carry out radiation safety assessments in all facilities that employ sources that are capable of producing or emitting radiation. The Agency coordinates responses to radiological incidences and emergencies.

Before authorization is given for the use of a radiation source in a medical, industry, mining, education and research site, there must be an emergency and response plan available to mitigate the impact of an event occurring. It is also a regulatory requirement that all facilities should appoint a Radiation Protection Officer who plays a role in coordinating radiation safety issues and serves as a liaison person between the management of the facility and the RPA. Radiation Safety Assessments are carried out every year for registered facilities that use man-made radioactive sources and devices in various sectors. However, for naturally occurring radioactivity, assessment is still at its infancy especially regarding exposure to radon gas in mining and dwelling places.

The management of radiation waste is handled in two ways depending on the time frame in relation to the enactment of the legal framework. After the legal framework was put in place, those bringing in radiation sources are required to sign an MOU to return to supplier of origin any leftover radiation sources not used in the country. Radiation sources brought into the country before the legislation are stored in a safe facility.

Currently there is no laboratory at RPA specifically built for radioactivity analyses. There is, however, laboratory capacity at the National Institute for Scientific and Industrial Research for systematic analysis of radioactivity. Further, Zambia being a Member State of the International Atomic Energy Agency (IAEA), benefits from the laboratory services that the IAEA provides upon request.

There is no specific national policy on radiological and nuclear emergency preparedness and response. However, there is at the national level a multi-hazard national disaster policy which is coordinated under the office of the Vice President. A National Nuclear and Radiological Response Plan is being drafted. This will include strategies and plans for detection, assessment, and response to radiological emergencies.

There is no regular monitoring of consumer products and goods. However, there is a mechanism in place to monitor the level of radioactivity in consumer products originating from suspected areas where nuclear accidents or incidents have been reported. The RPA is required to undertake monitoring of imported and local foods to detect any potential contamination with radioactive material. This function is not fully implemented due to financial constraints and inadequate laboratory infrastructure.

No international convections specific to radiological and nuclear emergencies have been signed or ratified. However, Zambia is a State Party to the Treaty on the Non-Proliferation of Nuclear Weapons and to the African Nuclear-Weapon-Free Zone Treaty (Treaty of Pelindaba). The process of ratifying the IAEA Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency and the IAEA Convention on Early notification of a Nuclear Accident has reached an advanced stage.

Recommendations for priority actions

- Finalize the national Nuclear and Radiological Emergency Preparedness Response Plan and the National Nuclear Policy.

- Establish a national committee on nuclear and radiological emergency response.

- Enhance the laboratory capacities and procurement of radiation detecting equipment for first responders.

- Develop technical guidelines for the management of radiation emergencies including risk assessment, reporting, event confirmation and notification, and investigation.

Indicators and scores

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

Strengths/best practices

- The Radiation Protection Agency which has responsibility for radiation safety and for coordinating the response to radiation incidents and emergencies exists.

- All facilities wanting to import radiation sources are required to have an emergency response plan in place and a radiation safety officer in place before permission to import is given.

Areas that need strengthening/challenges

- There are insufficient specialised staff to monitor all aspects of radiation emergency preparedness and response.

- There is limited aboratory capacity at national level for systematic analysis and at the points of entry to monitor import and export of foodstuffs and a lack of equipment to detect contamination in consumer products.

- There are insufficient financial resources to:

  ❍ Finalise drafting the National Nuclear and Radiological Emergency Response Plan (NNRERP).

  ❍ Conduct national radiation risk mapping.

  ❍ Develop the standard operation procedures and action guides for responders to radiation emergency.

OTHER

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

Strengths/best practices

- There is an existing partnership with the International Atomic Energy Authority to mobilize external experts as necessary.

- There is a radiation protection officer at all key sites and site-specific emergency plans are a regulatory requirement.

- Installation of radiation monitoring devices in strategic places, including at the designated Points of Entry has been conducted; an MoU was signed between RPA and Customs.

- Regulations on transport of radio nuclear material and waste management exist.

- A National Energy Policy is in place and Nuclear Energy Policy is under development; a strategic plan to strengthen surveillance and response on radio-nuclear events exists.

Areas that need strengthening/challenges

- The communication and coordination structure between RPA and the IHR National Focal Point need to be strengthened.

- Establishment of a National Coordination body and Multisectoral/Interdisciplinary Coordination mechanisms.

- A strategic plan for radiation safety to strengthen surveillance and response in the event of a radiological/nuclear should be developed.

- The assessment and regular reporting of radiological risks to relevant authorities needs to be strengthened.

- Conduct of audit/evaluation for exercise/responses.

- Community awareness and information on radiation risks and emergencies should be developed and strengthened.

Appendix 1: JEE background

Mission place and dates

Livingstone, Zambia: 7-11 August 2017

Mission team members:

- Sally-Ann Ohene World Health Organization, Ghana (team lead)

- Remidius Kakulu, Ministry of Health, Tanzania (team co-lead)

- Adebayo Adedeji, Nigeria Centre for Disease Control,

- Maria Axelsson, Public Health Sweden

- Sonnah Zainab Bangura, Writer, WHO Consultant

- Faiqa Ebrahim, World Health Organization, Congo

- Patrice Gautier, The World Organisation of Animal Health,

- Matthhew Maturi, Ministry of Agriculture, Kenya

- Tasiana Mzozo, World Health Organization, Congo

- Olubunmi Ojo, Nigeria Centre for Disease Control,

- Hitoshi Oshitani, Japan International Corporation Agency,

- Chris Oxenford, World Health Organization, Geneva

- Mary Stephens, World Health Organization, Nigeria

Objective

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

The JEE process

The JEE process is a peer-to-peer review. The entire external evaluation, including discussions around the scores, the strengths, the areas that need strengthening, best practices, challenges and the priority actions should be collaborative, with JEE team members and host country experts seeking full agreement on all aspects of the final report findings and recommendations.

Should there be significant and irreconcilable disagreement between the external team members and the host country experts, or among the external, or among the host country experts, the JEE team lead will decide the outcome; this will be noted in the final report along with the justification for each party's position.

Preparation and implementation of the mission

- Prior to the visit meetings were held with WHO (AFRO) and the host country

- Consultations were held with the team of experts to review the agenda, responsibilities, and organisation.

- Workshops were held in December 2016 and July 2017 to provide all the national stakeholders with the necessary information and resources to participate in the JEE process including guidance on self-reporting requirements and responsibilities for the process.

- Participants from Ministry of Health and other government ministries attended the workshop giving guidance on the completion of the JEE tool, the review and scoring process of the 19 technical areas and the incorporation of comments made by WHO (AFRO)

- Meetings with the relevant stake holders and field visits were conducted to validate the collected information.

- A consensus was reached with the nationals with regards to the scores and priority actions

- A debriefing meeting with senior officials and national technical teams involved in the evaluation took place to present the outcome of the JEE, best practices and priority actions.

- The press was invited to take pictures and publish the outcome of the JEE.

- The Directors thanked the JEE team, technical staff, and the stake holders for their hard work and contribution. They acknowledged the importance of the priority actions and the commitment to take on board the priorities identified using a systematic approach in collaboration with other ministries and agencies.

Limitations and assumptions

- The evaluation was limited to one week, which limited the amount and depth of information that could be managed.

- It is assumed that the results of this evaluation will be publically available.

- The evaluation is not just an audit. Information provided by <host country> will not be independently verified but will be discussed and the evaluation rating mutually agreed to by the host country and the evaluation team. This is a peer-to-peer review.

Key host country participants and institutions

Zambia's lead representative:
Dr Victor Mukonka, Director, Zambia National Public Health Institute

Participating institutions:
- Ministry of Health
- Ministry of Agriculture
- Ministry of Fisheries and Livestock

List of Participants

NAME	ORGANISATION
Mwanamwenge Abrahams	World Health Organization
Henry Banda	Ministry of Health
Sinkala Brighton	Ministry of Health
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Dr. Francis Bwalya	Ministry of Health
Elizabeth Chafwa	Ministry of Health
Angelina Chilube	Ministry of Health - Kazungula
Philip Chindongo	Ministry of Fisheries and Livestock

NAME	ORGANISATION
Burton Chiyabi	Ministry of Health
Caroline Chunga	Ministry of Health
Dr. Mulenga Francis	Ministry of Fisheries and Livestock –Department of Veterinary Services
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Dr. Cliff .J.Hara	Livinstone- District Health Office
Dr. Mathews Kabeta	Ministry of Fisheries and Livestock - Department of Veterinary Services
Christopher Kanema	Zambia Environmental Management Agency
Dr. Wezi Kaonga	Ministry of Health
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Dr. Sumbukeni Kowa	Ministry of Health - Food and Drugs Control Laboratory
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Vincent Lukali	Zambia Medicines Regulatory Authority
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Doreen Sakala	Ministry Of Health

NAME	ORGANISATION
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Dr. Yoona Sinkala	Ministry of Fisheries and Livestock - Department of Veterinary Services
Josephine Mayaka Simwinga	Ministry of Health Child Health Unit
Mr Martin Siazemo	Ministry of Agriculture - Zambia Agricultural Research Institute
Brian Siakabeya	Ministry of Local Government
Peter Songolo	World Health Organization
Mr. Lackson Tonga	National Biosafety Authority
Dr. Kaunda Yamba	Ministry of Health –University Teaching Hospital Bacteriology

Supporting documentation provided by host country

National legislation, policy and financing

- MoH (1995) Public Health Act Cap 295 of the Laws of Zambia, Lusaka.
- MoH (2001) Food and Drugs Act Cap 303 of the Laws of Zambia, Lusaka.
- MoH, WHO, CDC & UK AID (2011) Technical Guidelines for Integrated Disease Surveillance and Response in Zambia(IDSR), Lusaka.
- WHO (2005) International Health Regulations (2005), Geneva.
- MoH (2017) Minutes of the NEPPC&MC meetings, Lusaka
- MoH (2011) MoU between Zambia, Angola, CDR and Namibia
- MoH (2015) IHR (2005) Implementation Plan, Lusaka.

IHR coordination, communication and advocacy

- Terms of Reference for the Technical Working Group for IHR
- IHR plan 2013-2015
- Copies of letters sent to stakeholders and responses

Antimicrobial resistance

- Multi-sectoral National Action Plan on Antimicrobial Resistance Plan (available at MOH-ZNPHI)
- AMR Country Situation Analysis Report
- WHO Global Action Plan on Antimicrobial Resistance
- OIE Strategy on Antimicrobial Resistance and the Prudent Use of Antimicrobials
- National Infection Prevention and Control Guidelines
- National Treatment Guidelines
- OIE PVS Evaluation of the Veterinary Service of Zambia (2008).
- Animal Health Act of 2010
- Food safety Act

Zoonotic diseases

- Department of Veterinary and Livestock Development Report, 2010.

- The Animal Health Act, 2010. Government of the Republic of Zambia

- Performance of Veterinary Services (PVS) Pathway 2011 assessment

- Technical Working Group Working Document. (Available at the School of Public Health, UNZA)

Food safety

- Minutes of Committee Meetings

- Outbreak investigation reports

- Zambia Laws – PHA Cap 295: Food and Drug Act Cap 303

- WHO (2007) Codex Imports and Exports Inspections and Certification System,3rd ed. Rome, Italy

- http://www.who.int/foodsafety/publications/all/en/

- Assessment of the food Control System of Zambia. FAO Final Report. 2012.

- Evaluation of the Veterinary Services of Zambia. OIE. 2008.

Biosafety and biosecurity

- Biosafety Act No. 10, of 2007 of the Laws of Zambia

- Public health Act Cap 295 of 1995 of the Laws of Zambia

- Environmental Management Act of the Laws of Zambia

- Publications of the National Biosafety Authority (http://www.nbazambia.org.zm/)

- Quality Manual University Teaching Hospital

- Quality Manual Central Veterinary Research Institute

- Safety Manual University Teaching Hospital

Immunization

- Immunization Comprehensive Multi-Year Plan (c-MYP), 2017-2021

- Immunization Guidelines and manuals/Standard operating procedures (SOP)

- Terms of Reference for the Interagency Coordinating Committee (ICC)

- Zambia Vaccine Cold Chain Scale-Up Strategy 2011

National laboratory system

- The Animal Health Act, 2010. Government of the Republic of Zambia

- Performance of Veterinary Services (PVS) Pathway. World Organisation for Animal Health (OIE). (Available at Ministry of Fisheries and Livestock).

- Technical Working Group Working Document. (Available at the School of Public Health, UNZA.

Real-time surveillance

- Zambia Technical Guidelines for Integrated Disease surveillance
- DHIS2 Manual - 2014
- Zambia National Public Health Institute Strategic Plan - (ZNPHI) 2017-2021. (March 2017)

Reporting

- National Public Health Emergency Preparedness and Response Plan (2017)
- Integrated Disease Surveillance and Response Plan (2011)
- IHRM reports
- IHR (2005)
- National IHR Action plan (2013)

Workforce development

- National Human Resources for Health Strategic Plan 2011-15 (HRH-SP 2011-15)
- OIE PVS Gap Analysis report (2009).

Preparedness

- The IDSR manual
- The National Health strategic plan 2017-2021
- The National Public Health Institute Strategic plan
- The Zambia Ebola Preparedness and Response Plan
- WHO (2005) International Health Regulation 3rd Edition.
- NEPPC&MC Minutes
- The Strategic Framework for emergency preparedness
- The national Public Health Act
- National Cholera emergency response and prevention plan (2016)
- National Health Policy (2014)

Emergency response operations

- National Epidemic and Response plan -2017. NEPPC&MC minutes.
- Zambia Rapid Health Sector Performance Assessment Report, October 2015
- WHO (2015), Framework for a Public Health Emergency Operations Centre
- WHO (2005), 3rd edition. International Health Regulation
- Zambia Ebola Preparedness and Response Plan 2015

Linking public health and security authorities

- Disaster Management Act no.13 of 2010
- Biotechnology and Biosafety Policy

- Civil Aviation Act No 7 of 2012

- Minutes of the NEPPC& MC

- Zambia National Contingency Plan

- Zambia Civil Aviation Regulations

- Aeronautical Search and Rescue Organisation Minutes

Medical countermeasures and personnel deployment

- National Assemblies of Zambia (2010), Animal Health Act No. 27 of 2010, Govt Printers

- National Public Health Emergency Preparedness and Response Plan, Version 1.2 of March 2017

- ZNPHI Strategic Plan 2017-2021

- National Health Strategic Plan

Risk communication

- Minutes of the National Epidemic Preparedness and Prevention Committee meeting

- Reports of meetings with media houses

- Community Action Plans from sampled districts

- MOU between Ministry of Health and ZNBC

- Community Health Strategy

Points of entry

- IHR 2005

- Food and Drugs Inspection Manual

- IDSR guidelines

- Assessment of PoEs reports

- Draft Standard Operating Procedures

Chemical events

- Environmental Management Act No 12 of 2011

- Statutory Instrument No 112 of 2013

- Environmental Emergencies and Response Plan (2009)

- National Public Health Emergency Preparedness and Response Plan (2017)

- National Profile for chemicals (2007)

- Chemical Observatory Baseline Assessment report (2016)

- Integrated Disease Surveillance and Response Plan (2011)

- Chemical Incidents reports

- National Implementation Plan for the Global Harmonised System (GHS)

- Global Harmonised System (GHS) Standard (DZS708)

- Transportation of Dangerous Goods (TDG) Standard (DZS670)
- Feasibility study for establishment of poison centre

Radiation emergencies

- The Ionising Radiation Protection Act, No. 16 of 2005, currently being reviewed.
- The Ionising Radiation Protection (General) Regulations 2011
- The draft National Nuclear and Radiological Emergency Response Plan
- The Strategic Plan for RPA (2013 to 2017), currently being reviewed for 2017 to 2021
- The draft Radioactive Waste Regulations
- The draft Transport of Radioactive Material Regulations