

# JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES

of the

## REPUBLIC OF ZIMBABWE

Mission report:  
19-23 February 2018



World Health  
Organization



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## Abbreviations

<b>AMR</b>	Antimicrobial resistance
<b>AU-IBAR</b>	African Union Inter-African Bureau for Animal Resources
<b>CVL</b>	Central Veterinary Laboratory
<b>DLVS</b>	Department of Livestock and Veterinary Services
<b>EMA</b>	Environmental Management Agency
<b>EOC</b>	Emergency Operations Centre
<b>EPI</b>	Expanded Program on Immunization
<b>EPR</b>	Emergency Preparedness and Response
<b>EQA</b>	External Quality Assurance
<b>EVD</b>	Ebola Virus Disease
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>HCAI</b>	Health Care-Associated Infection
<b>IAEA</b>	International Atomic Energy Agency
<b>IACCH</b>	Inter-Agency Coordination Committee on Health
<b>IDSR</b>	Integrated Disease Surveillance and Response
<b>IHR</b>	International Health Regulations (2005)
<b>IPC</b>	Infection prevention and control
<b>MAMID</b>	Ministry of Agriculture, Mechanization, and Irrigation Development
<b>MEWC</b>	Ministry of Environment, Water and Climate
<b>MOHCC</b>	Ministry of Health and Child Care
<b>MoU</b>	Memorandum of Understanding
<b>MPH</b>	Master of Public Health
<b>NatPharm</b>	National Pharmaceutical Company of Zimbabwe
<b>NBA</b>	National Biotechnology Authority
<b>NFP</b>	National Focal Point/Person
<b>NMRL</b>	National Microbiology Reference Laboratory
<b>OIE</b>	World Organization for Animal Health
<b>PHEOC</b>	Public Health Emergency Operation Centre
<b>PoE</b>	Point of Entry
<b>RPAZ</b>	Radiation Protection Authority of Zimbabwe
<b>RRT</b>	Rapid Response Team
<b>SADC</b>	Southern Africa Development Committee
<b>SOPs</b>	Standard Operating Procedure
<b>VRAM</b>	Vulnerability Risk Assessment and Mapping
<b>ZDF</b>	Zimbabwe Defence Forces
<b>ZIMRA</b>	Zimbabwe Revenue Authority
<b>ZINQAP</b>	Zimbabwe National Quality Assurance Programme
<b>ZRP</b>	Zimbabwe Republic Police



## Executive summary

Zimbabwe is to be commended for volunteering to host a Joint External Evaluation (JEE). This demonstrates strong commitment, foresight, leadership, and confidence in the process on the part of the government. The national team should also be congratulated for convening a large number of participants including key program managers and technical experts, from a variety of organizations and departments, to contribute to the self-assessment, as well as the external evaluation. Their contributions greatly enriched the preparation and delivery of the JEE mission.

Based on the findings of the mission and the recommended priority actions for each of the 19 technical areas, six overarching thematic areas emerged, which require strong high-level commitment:

### 1. Consolidate and strengthen multi-stakeholder engagement for advancing a true One Health agenda.

Public health threats today are complex and demand a risk management approach that is multi-sectoral, multi-disciplinary, and involve multiple stakeholders. Strategically, this calls for taking a 'whole-of-government' and a 'whole-of-society' perspective in the design and implementation of emergency programmes and interventions. These are also the defining features of the One Health approach, which brings together the human, animal, and environmental health sectors, and underpins the implementation of IHR (2005).

Zimbabwe has been successfully using several informal and ad hoc multi-sectoral mechanisms for many years to respond to emergencies, as well as for development projects. The recently launched National Action Plan on Antimicrobial Resistance (AMR) calls for strong multi-sectoral coordination and implementation mechanisms, including the integration of animal, human, and environmental health surveillance systems. Coordination platforms such as the decentralized Zoonotic Committees, the Inter-Agency Coordination Committee for Health (IACCH), and the multi-agency linkage with the Department of Civil Protection (the entity mandated to coordinate the response to all emergencies in Zimbabwe), are some examples of current good practices in multi-sectoral coordination and implementation in Zimbabwe. Furthermore, the new Public Health Bill (2017) of Zimbabwe, which is expected to be approved by the Parliament and enacted into law in the coming months, incorporates provisions that will facilitate the implementation of IHR (2005). Towards fostering a true One Health approach in the implementation of IHR (2005), Zimbabwe will need to:

- Fast-track the updating of relevant legislation and policies, and develop new ones where needed.
- Empower the current coordination and implementation mechanisms by formalizing the arrangements through appropriate memoranda of understanding (MoUs) and standard operating procedures (SOPs).

### 2. Strengthen the surveillance systems, with integration and interoperability as the core underlying principles.

Zimbabwe has expressed and demonstrated a strong commitment to build and maintain robust surveillance systems for priority diseases in the human, animal, and environmental sectors. Furthermore, decentralized integrated systems are being planned to efficiently track antimicrobial resistance in the human, animal, and environmental domains. Lab capacities for diagnostic and susceptibility testing exist, and the scope of their functions is also expected to be expanded. The capacity to respond more effectively and rapidly to public health threats in Zimbabwe will require:

- Expansion, integration, and interoperability of electronic methods for data collection, transmission, analysis, and information sharing, across sectors and down to the grassroots level.
- Generating and sharing real-time data and information to support decision-making, rapid response, monitoring, and evaluation.

### **3. Develop and implement innovative methodologies and make greater use of new technologies to enhance cost-effectiveness and the quality of interventions.**

Substantial and additional financial resources are required in Zimbabwe to build a critical mass of trained public health professionals and frontline workers; and ensure the availability of supplies, consumables, hardware, and basic infrastructure. At the same time, the systems being built must continue to deliver timely and high-quality results over the foreseeable future. Towards ensuring this, Zimbabwe may wish to consider making some strategic investments in developing innovative methodologies and expanding the use of new technologies. This can bring about cost-efficiencies, as well as, substantial improvements in the timeliness and quality of information and interventions. Potential areas to consider for innovations include:

- Methodologies to minimize dilution and enhancing the quality of large-scale training interventions for frontline workers.
- The convergent use of geographical information systems (GIS), mobile telephony, and digital data capture tools for improving data quality, timeliness, and integration of surveillance systems.
- Developing a sentinel system that links epidemiological and social data on a real-time basis, to understand better the socio-behavioral drivers and determinants of disease outbreaks.

### **4. Expand the network of stakeholders involved to include civil society and private sector actors.**

Globally, there is ever more clearer evidence emerging that a 'whole-of-society' approach is an imperative for responding to large-scale and complex emergencies. Emergency preparedness and response activities including surveillance, outreach, risk mapping, monitoring, etc., would benefit substantially by the inclusive and concerted engagement of civil society and NGO actors, private industry, the business sector, and communities themselves, in these activities. Moving forward, Zimbabwe must ensure that these stakeholders are fully engaged in the IHR (2005) implementation process.

### **5. Build a programme of work that retains a strong focus on addressing the socio-behavioral determinants and drivers of disease emergence and spread.**

Human behaviors and actions ultimately drive both, the emergence of disease, and its prevention and control. In the context of emergencies, behaviors and decision-making of populations are largely influenced by the perception of risk, deep-rooted socio-cultural norms, and the level of trust that communities have in the public health authorities. Enhanced understanding of the socio-behavioral dimensions of diseases prevention and control will also facilitate the quality of training of frontline workers and their engagement with communities. It is therefore crucial to balance investments between the 'technical' and the 'social' domains. Towards this, Zimbabwe may consider making specific and earmarked investments in:

- Qualitative socio-behavioral research, after-action reviews, and building systems for continuous and real-time dialogue/communication with affected communities.
- Processes and systems for better linkage of social data and epidemiological data, to substantively improve the design and content of health protection messaging and communication strategies.

## 6. Establish processes that facilitate a culture of continuous learning from every emergency response event.

Zimbabwe has experienced several public health emergencies and natural disasters in the recent past. It also continues to deal with regular flare-ups of endemic infectious diseases. The lessons from the response to each such event needs to be systematically reviewed and documented to continuously improve coordination, risk management, and the emergency response. Simulations, including desktop exercises, also help in testing systems and protocols for different scenarios. A strong programme of after-action reviews and simulation exercises should be planned and implemented to sharpen operational skills and response times.

Resources and expertise for technical support to strengthen capacities in all the above six thematic areas are available to Zimbabwe from WHO, OIE, FAO, CDC, and several other key international partners. Much of this support can be made available at no cost and should be proactively leveraged by Zimbabwe on its path to full implementation of the IHR (2005).

The JEE team would like to express its appreciation for the considerable work and effort Zimbabwe dedicated to the JEE process, including both the self-evaluation and the external evaluation.

The professionalism, transparency, and willingness of the Zimbabwe team to receive constructive critique and seek solutions together with the JEE team was instrumental to the mission's success.

The JEE team is confident that the outputs of the JEE mission will be used by Zimbabwe as a robust basis for developing a comprehensive and time-bound national action plan for the way forward.

## Zimbabwe scores

Technical areas	Indicators	Score
<b>National legislation, policy and financing</b>	P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR (2005)	1
	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)	1
<b>IHR coordination, communication and advocacy</b>	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR	2
<b>Antimicrobial resistance</b>	P.3.1 Antimicrobial resistance detection	2
	P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens	3
	P.3.3 Health care-associated infection (HCAI) prevention and control programmes	2
	P.3.4 Antimicrobial stewardship activities	2
<b>Zoonotic diseases</b>	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	3
	P.4.2 Veterinary or animal health workforce	3
	P.4.3 Mechanisms for responding to infectious and potential zoonotic diseases are established and functional	3
<b>Food safety</b>	P.5.1 Mechanisms for multisectoral collaboration are established to ensure rapid response to food safety emergencies and outbreaks of foodborne diseases	2
<b>Biosafety and biosecurity</b>	P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	1
	P.6.2 Biosafety and biosecurity training and practices	1
<b>Immunization</b>	P.7.1 Vaccine coverage (measles) as part of national programme	3
	P.7.2 National vaccine access and delivery	4
<b>National laboratory system</b>	D.1.1 Laboratory testing for detection of priority diseases	4
	D.1.2 Specimen referral and transport system	4
	D.1.3 Effective modern point-of-care and laboratory-based diagnostics	2
	D.1.4 Laboratory quality system	2
<b>Real-time surveillance</b>	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	4
	D.2.4 Syndromic surveillance systems	4
<b>Reporting</b>	D.3.1 System for efficient reporting to FAO, OIE and WHO	3
	D.3.2 Reporting network and protocols in country	2
<b>Workforce development</b>	D.4.1 Human resources available to implement IHR core capacity requirements	3
	D.4.2 FETP <sup>1</sup> or other applied epidemiology training programme in place	3
	D.4.3 Workforce strategy	3

1 FETP: Field epidemiology training programme

Technical areas	Indicators	Score
<b>Preparedness</b>	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
<b>Emergency response operations</b>	R.2.1 Capacity to activate emergency operations	2
	R.2.2 EOC operating procedures and plans	2
	R.2.3 Emergency operations programme	1
	R.2.4 Case management procedures implemented for IHR relevant hazards.	2
<b>Linking public health and security authorities</b>	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
<b>Medical countermeasures and personnel deployment</b>	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
<b>Risk communication</b>	R.5.1 Risk communication systems (plans, mechanisms, etc.)	1
	R.5.2 Internal and partner communication and coordination	2
	R.5.3 Public communication	3
	R.5.4 Communication engagement with affected communities	3
	R.5.5 Dynamic listening and rumour management	2
<b>Points of entry</b>	PoE.1 Routine capacities established at points of entry	2
	PoE.2 Effective public health response at points of entry	1
<b>Chemical events</b>	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	1
<b>Radiation emergencies</b>	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	1

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](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.*

### Zimbabwe level of capabilities

Zimbabwe has rules, legislation, laws, regulations, administrative requirements, policies, and other government instruments that support some of the IHR (2005) components. However, a comprehensive assessment has not been carried out to determine if they facilitate full implementation of IHR (2005). The country does have cross border agreements regarding public health emergencies. These include the Southern African Development Community (SADC) Protocols on Health , Communicable Diseases, and the Sanitary and Phytosanitary Agreement; SADC Ministers of Health Communique on Ebola (Zimbabwe, Mozambique and Malawi); Joint Communique of Ministers of Health of Mozambique, Malawi and Zimbabwe on Communicable Diseases; Joint Cholera Initiative for Southern Africa; the Zambia, Zimbabwe, Botswana, and Namibia (ZAZIBONA) Collaborative Registration Process; the Zambia-Zimbabwe (ZAMZIM) Malaria Cross-border Agreement; the Basel, Rotterdam, and Stockholm Conventions; and the Trans-Limpopo Malaria Initiative (TLMI).

Zimbabwe still uses its old Public Health Act [Ch. 15:09] of 1924 which does not cover all aspects of IHR (2005). In 2017, the government prepared a new Public Health Bill, which incorporates the IHR (2005), and is awaiting parliament approval for enactment into law. The new Bill allows for new regulations to be developed and submitted to the President's office for approval. The current Port Health Regulations include a component of IHR (2005). The National Health Sector Strategy (2016-2020) of Zimbabwe incorporates the IHR (2005).

The country ensures coordination through structures that include the National Rapid Response Teams (NRRTs), formal cross-border agreements and collaborations, the Sanitary and Phytosanitary Committee, the Border Efficiency Management System Technical Committee, the One Stop Border Post Act, and the Inter Agency Coordination Committee on Health (IACCH). Coordination and information exchange is also facilitated through collaborative meetings: at Points of Entry, the provincial and district Zoonotic Subcommittees the Civil Protection Committees (at all levels), the Health Officers Forum, and the Weekly Disease Surveillance meetings and bulletins.

## Recommendations for priority actions

- Conduct a systematic and formal assessment of all relevant existing legislation, administrative arrangements, and regulations towards adjusting and aligning current laws, policies, and administrative arrangements to enable compliance with, and the full implementation of, IHR (2005).
- Facilitate and expedite Parliament approval and enactment of the new Public Health Bill (2017), which includes provisions to support the implementation of IHR (2005).
- Review and identify options for the possibility of creating a statutory instrument that will enable designation of the Inter-Agency Coordination Committee for Health (IACCH) as an empowered entity for facilitating full implementation of the IHR (2005) across all sectors.

## Indicators and scores

### **P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR (2005) – Score 1**

#### *Strengths/best practices*

- The country has drafted a new Public Health Bill in 2017 that will facilitate implementation of IHR (2005).
- Zimbabwe has some cross-border agreements, MoUs, and other instruments that promote implementation of IHR 2005.

#### *Areas that need strengthening/challenges*

- The country has not done a comprehensive assessment of legislation, regulations, administrative requirements, and other governmental instruments, to determine if they facilitate full implementation of IHR (2005).
- The country needs to align its laws to IHR (2005).

### **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 1**

#### *Strengths/best practices*

- The New Public Health Bill of 2017 incorporates the IHR 2005.
- Coordination for IHR (2005) implementation is done through structures like the Sanitary and Phytosanitary (SPS) Committee, the Interagency Coordination Committee on Health (IACCH), National Rapid Response Teams (NRRTs), and other mechanisms.

#### *Areas that need strengthening/challenges*

- Legislation needs to be aligned to IHR (2005).
- The coordination for IHR (2005) implementation is fragmented as there are numerous committees across the various sectors which do not communicate with each other on a regular basis.

# 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.*

## Zimbabwe level of capabilities

The Ministry of Health and Child Care (MOHCC) has designated the office of the Director of Environmental Health as the IHR National Focal Point (NFP) to oversee the implementation of IHR (2005). The NFP is available all the time and shares information with local and regional contacts as recommended by the IHR. The NFP is composed of focal persons from various IHR stakeholders including the Veterinary Services, the Environment sector, and other key partner organizations. Coordination involves engagement with various sectoral Ministries and their departments including: Health (Department of Epidemiology and Disease Control, Department of Environmental Health, Laboratory Services); Agriculture (Department of Livestock and Veterinary Services); Environment; Transport; Defence; Local Government (Department of Civil Protection); Finance; Home Affairs; Information, Communication & Technology; and the Radiation Protection Authority of Zimbabwe (RPAZ).

There is good implementation of a multisectoral approach, with channels and platforms for dissemination of information across various sectors and levels. A multisectoral and multidisciplinary Inter-Agency Coordination Committee on Health (IACCH), chaired by the Minister of Health, has been established for coordinating resource mobilization and response to public health events. This is activated during major emergencies and was last activated in January 2018 to address the cholera outbreak in Chegutu area. The IACCH meets weekly during active outbreaks and quarterly during other times. Additionally, there are regular meetings of the Task Force on Epidemic-Prone Diseases, involving national, provincial, district, and local authorities. The deliberations and recommendation of the task force meetings are shared with the IACCH for action and resource allocation.

Other mechanisms include the Zoonotic Committee meetings that are the coordinating mechanisms for One Health issues and zoonotic disease outbreaks. A Rapid Response Team has been established at the national level to provide scalable capacity for responding to outbreaks and public health events of concern. The Ministry of Health has also established a Public Health Emergency Operations Centre (PHEOC) that provides overall coordination for responding to disease outbreaks in the country.

An assessment of the implementation of IHR (2005) was conducted in 2016 which recommended strengthening of the NFP to systematically address the issue of strengthening of Core Capacities under the IHR (2005), including training and the development of standard operating procedures and protocols for



implementation. Members of the NFP addressing various Core Capacities have participated in sensitization and review meetings on IHR implementation at both national and provincial levels.

The NFP has demonstrated several mechanisms for coordinating IHR implementation. However, multisectoral collaboration has not been systematic and fully mainstreamed into the planning for preparedness and response to public health emergencies of international concern (PHEICs) as required under the IHR (2005).

## Recommendations for priority actions

Empower the IHR NFP office by:

- Developing clear terms of reference and standard operating procedures to facilitate and guide the coordination, communication, and partnership-strengthening functions of the NFP with all relevant sectors and entities.
- Develop a costed plan to ensure adequate government budget allocation to enable full functionality of the office of the IHR National Focal Point (NFP).
- Develop an advocacy plan to ensure the active engagement and collaboration of all key stakeholders involved in the implementation of IHR (2005).
- Develop a comprehensive roster of experts from agencies working on the various components of IHR, to draw on their expertise as needed.

## Indicators and scores

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

#### *Strengths/best practices*

- IHR National Focal Point(NFP) is designated and available.
- Numerous mechanisms exist for coordinating multisectoral collaboration through the IHR NFP.
- There is need-based exchange of information between relevant sectors involved in IHR implementation.
- The functions of the IHR NFP have been assessed previously and recommendations made for improvement.

#### *Areas that need strengthening/challenges*

- There is a need to formalize multisectoral coordination in implementation of the IHR (2005) with the IHR NFP as the central coordinating body across all the response platforms.
- Develop clear terms of reference for the NFP and standard operating procedures that will support the NFP to identify responsible agencies and persons for each IHR hazard.
- There is need for systematic exchange of information between sectors, especially the animal and environmental health sectors.
- There is need for increased advocacy, awareness and resource allocations for IHR implementation at the highest government levels.

# 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..*

## Zimbabwe level of capabilities

Zimbabwe has conducted a robust situation analysis on antimicrobial resistance (AMR), and launched a National Action Plan (NAP) for AMR in September 2017. The NAP was developed according to the One Health approach, although only a few activities are currently being implemented.

The National Microbiology Reference laboratory serves as the National Coordinating Centre for the AMR surveillance network of 17 sentinel sites comprising of 9 human health labs, 5 veterinary labs, 1 food lab, and 2 environment labs.

Currently, due to funding constraints, the sentinel sites are monitoring only two of the eight WHO priority pathogens – Salmonella spp. and Escherichia coli. The country has enrolled in the WHO Global Antimicrobial Resistance Surveillance System (GLASS) but is yet to commence submission of surveillance data. Antimicrobial stewardship and healthcare associated infection (HCAI) surveillance programs are not operational in Zimbabwe's health facilities. However, some of these facilities had previously participated in AMR point prevalence surveys.

Antimicrobials are widely used in the production of food animals and are available without prescription or veterinary oversight. There is no data on antimicrobial use in humans and animals although efforts are being put in place to start collecting data for this purpose. There is an infection prevention and control (IPC) policy for healthcare facilities, but the programme is not well developed in Zimbabwe. Although the AMR program enjoys some level of support from government partners, it is insufficient to fully implement the NAP.

The main challenge for establishing a robust AMR surveillance system is the lack of adequate awareness of AMR across all sections of society, whether in the professional or non-professional domain. There is also

inadequate funding to implement the NAP; lack of ongoing research to determine the drivers of AMR; non-participation of some of the laboratories in the network due to lack of reagents, equipment, and human resources; and limited participation in external quality assurance programs. The coordination mechanism needs substantial additional resources to implement NAP activities.

## Recommendations for priority actions

- Implement the Zimbabwe National Action Plan on AMR prioritizing awareness creation, AMR surveillance, antimicrobial stewardship, and healthcare associated infection prevention programs.
- Initiate the process of formally reporting surveillance data from all nationally designated surveillance sources/sites to the WHO Global Antimicrobial Resistance Surveillance System (GLASS), as well as to relevant national entities within Zimbabwe as required.
- Consider expanding AMR surveillance to additional pathogens (beyond the two currently under surveillance) as recommended by GLASS, through development of a costed plan for progressively expanding the number and scope of pathogens and surveillance sites, including antimicrobial residue testing of food animals meant for domestic consumption.
- Share the recommended priority actions identified by the OIE Performance of Veterinary Services (PVS), and the OIE Gap Analysis and associated Action Plan, with all key actors and proceed to implement the recommended actions.
- Identify and resolve bottle-necks and barriers to implementation of an integrated One Health surveillance system, including strengthening quality assurance and proficiency certification of all designated surveillance laboratories.
- Based on findings from the Zimbabwe AMR situation analysis, establish working baselines, time-bound targets, and develop strategies for effective implementation of public awareness, professional education, and antimicrobial stewardship programs/campaigns.

## Indicators and scores

### P.3.1 Antimicrobial resistance detection – Score 2

#### *Strengths/best practices*

- An approved National Action Plan (NAP) on AMR based on the One Health approach is in place.
- The National Microbiology Reference Laboratory (NMRL) has been designated as the national coordinating centre for the AMR surveillance network comprising of 17 sentinel laboratories.
- Some laboratories in the network have access to the WHONET software and participate in the External Quality Assurance (EQA) scheme administered by the Zimbabwe National Quality Assurance Programme (ZINQAP) which serves as the Southern Africa Development Community (SADC) Regional Centre of Excellence (RCE) in Quality Systems.

#### *Areas that need strengthening/challenges*

- There is need to train staff and equip laboratories appropriately for Zimbabwe to commence reporting AMR surveillance data into GLASS and inform national actions.
- Currently, only 2 out of 8 WHO priority pathogens for reporting to GLASS are being monitored.
- AMR surveillance has not yet formally begun; data is yet to be collected, analysed, interpreted, reported, and published.
- To ensure data quality and compliance of all participating laboratories, EQA processes will continue to need strong financial and technical support.

### P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens – Score 3

#### *Strengths/best practices*

- The National Action Plan on AMR includes surveillance for human infections caused by resistant pathogens, and Zimbabwe is enrolled in the WHO GLASS surveillance network.
- An AMR situation analysis has been conducted which details the prevalence and resistance patterns of the most common human pathogens in the country. WHONET software is available at some of the human and animal health laboratories for reporting which is to be centrally coordinated by the NMRL.

#### *Areas that need strengthening/challenges*

- Low human resource capacity and limited provision of quality assured antimicrobials, standard treatment guidelines and essential medicines list for human and animal health.
- Environmental surveillance of antibiotics is currently not being done, and food chain sources are not included in the AMR surveillance.

### P.3.3 Health care-associated infection (HCAI) prevention and control programmes – Score 2

#### *Strengths/best practices*

- There is an approved national IPC policy with SOPs for health facilities, and the existing plan for IPC and HCAI is reviewed every two years.
- Majority of health facilities have IPC committees and isolation units, and there are trained IPC professionals in all tertiary hospitals.
- There is a system to regularly evaluate the effectiveness of IPC measures and publish the results.

#### *Areas that need strengthening/challenges*

- Surveillance to detect cluster of health care associated infection within high risk groups is not yet in place.
- Harmonization of IPC policies required across different disease-specific programmes. Different specific disease programmes with different IPC policies require harmonization.
- HCAI programs not well executed in majority of the health facilities as there is no robust system in place for evaluating HCAI measures.

### P.3.4 Antimicrobial stewardship activities – Score 2

#### *Strengths/best practices*

- The National Action Plan includes a component on antimicrobial stewardship.
- National guidance on antimicrobial use is provided through the Essential Medicines List of Zimbabwe which is reviewed and updated every two years.
- The first point prevalence survey on antibiotic prescribing included participation of central, provincial, district, and infectious diseases public hospitals, as well as, those in the private healthcare sector.
- Plan in place to carry out antimicrobial use survey using Defined Daily Doses for antimicrobials.
- There is a legal requirement to have a prescription for most antimicrobials used in human medicine.

#### *Areas that need strengthening/challenges*

- Data on antimicrobial use, including prescription patterns, are lacking - for both humans and food animals.
- The mandatory requirement of a prescription for sale/purchase of antimicrobials is not enforced effectively.
- Antimicrobial stewardship committees not yet established or empowered, hence antimicrobial stewardship programs are not being implemented in health facilities.

# 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.*

## Zimbabwe level of capabilities

Zimbabwe experiences several zoonotic disease events annually, some of which are endemic while others occur sporadically. All the important zoonotic diseases have been identified and listed as notifiable diseases under the Animal Health Act. The reporting of all suspected and confirmed cases for such diseases is mandatory. The Animal Health Act also provides for the gazettement of identified geographical areas where, for example, priority diseases such as rabies or anthrax appear to be entrenched.

The country has experienced rabies and anthrax outbreaks in the recent past. Rift valley fever and brucellosis occur sporadically, while trypanosomiasis is limited to specific geographical locations infested by the tsetse fly. Special control programs are implemented in such areas. The country has a government-funded mandatory animal vaccination program for both rabies and anthrax. Zimbabwe also experienced an outbreak of highly pathogenic avian influenza (H5N8) for the first time in May 2017. The outbreak was successfully controlled through depopulation of the flocks at the affected property. The avian influenza contingency plan was updated in 2017 following the H5N8 outbreak.

Zimbabwe has a history of mounting effective animal disease control programmes with strong leadership by the veterinary services, good coordination with the private sector, clear strategic planning, and efficient implementation of control activities. In recent times however, disease control programmes have been under-resourced and have struggled to maintain their momentum. Previously controlled diseases are re-emerging or are at increased risk of re-emerging. Zoonotic diseases have also been increasing due to the lack of strong epidemiological surveillance and financial resources to apply adequate control strategies such as a robust compensation mechanism to encourage early notification of priority diseases.

The ministries of Agriculture, Health, and Environment are jointly responsible for the management of zoonotic diseases using the One Health approach. This is done through the Zoonotic Committees at national, provincial, and district levels, that meet monthly to share information and coordinate the delivery of veterinary public health interventions. Other partners involved at the national level, to name a few, include the Zimbabwe Revenue Authority (ZIMRA, for improving border control), Zimbabwe Republic Police (ZRP, for enforcement of movement control), Local Authorities (for management of slaughterhouses/ places and processors), Environmental Management Agency (EMA, for managing dip tanks and animal product waste), the Zimbabwe Parks and Wildlife Management Authority (Zimparks), and international development partners such as WHO, OIE, FAO, and the African Union Inter-African Bureau for Animal Resources (AU-IBAR).

The Department of Livestock and Veterinary Services (DLVS) of the Ministry of Agriculture, Mechanization, and Irrigation Development (MAMID) has a livestock disease surveillance system for tracking imminent disasters related to livestock. The system is not robust enough and calls for investment in skills development and adequate equipment. The department is applying GIS in mapping risks related to Foot and Mouth Disease (FMD), anthrax and rabies. Furthermore, the Ministry of Health and Child Care (MoHCC) is planning to incorporate data from the veterinary services into the national health information system.

Laboratory functions are provided by the Central Veterinary Laboratory (CVL) at Harare which has a dedicated rabies section that operates seven days a week. Plans are underway to decentralize rabies testing to three other provincial labs. There are also eight other private and/or associated labs providing veterinary lab services. Quality control assurance is being provided by the South Africa National Accreditation System (SANAS).

At the sub-district level, Animal Health Medical Centres (AHMCs) provide consultation services, perform vaccinations, branding, and supervise the work done at the dip tanks. With more than 800 such centres, they represent a key part of the surveillance network, as they are the ones in closest contact with the animals and farmers. In Zimbabwe the management of veterinary public health is divided between the veterinary services under DLVS and MoHCC under various activities including MCAZ and the field operations of the Environmental Health Officers (EHOs) including passive surveillance at the slaughterhouses (ante mortem inspection).

Public health training for animal health and veterinary staff is part of the curriculum for University of Zimbabwe undergraduate and post-graduate students, as well as for diploma students at the Mazowe and Bulawyo polytechnics for extension staff and meat hygiene inspectors. Attachment to public health institutions is mandatory for all animal health-training courses. Degree-holding veterinarians are posted by the government up to the district level, while diploma and certificate holders are generally deployed within farming communities at the sub-district levels.

The country has a mechanism in place for a coordinated response to zoonoses. However, it is not institutionalized and although there is regular exchange of information between DLVS and MoHCC there is need to make it more systematic and improve timeliness. There is also no formal national policy, strategy, or plan in place for responding to zoonotic events.

Notably, Zimbabwe has performed all the steps within the OIE PVS Pathway and developed a budgeted work plan to improve and strengthen the veterinary services in line with national priorities.

## Recommendations for priority actions

- Institutionalization of multisectoral collaboration to address zoonotic diseases by:
  - Establishing the “One Health” approach as formal policy in the country to cover all relevant aspects of the IHR including zoonotic diseases, food safety, and AMR.
  - Strengthening zoonotic committees at the various levels, and securing adequate and sustainable funding so that they function efficiently in supporting surveillance, lab activities, and a coordinated response through joint RRTs.
  - Develop an MoU between the ministries of health, agriculture and environment that document a ‘concept of operations’ and specify actions necessary to promote the One Health approach.
- Establish an integrated information management system for systematic and timely information sharing and exchange between all relevant sectors.
- Establish attractive recruitment and retention schemes for personnel trained and experienced in the One Health approach, especially veterinarians at the district level.

## Indicators and scores

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

#### *Strengths/best practices*

- Roles and responsibilities of key partner ministries (Health, Agriculture, and Environment) in the zoonotic committees are aligned with their respective mandates and well-defined in terms of surveillance responsibilities, sharing of data and information on zoonotic events, and actions related to awareness creation, outbreak control, and safe disposal of infectious materials.
- The updated Animal Health Act is under finalization.
- Surveillance systems are in place for priority zoonoses such as rabies, anthrax, trypanosomiasis, salmonellosis, avian influenza, and brucellosis. The large cadre of extension workers and dip attendants at the grassroots are a great resource for disease surveillance and control.
- There is functional laboratory testing for priority diseases supported by the Central Veterinary Laboratory (CVL), district laboratories, and some private labs. The CVL also produces antigens for brucellosis testing.

#### *Areas that need strengthening/challenges*

- While coordination structures exist there is no documentation on formal institutional arrangements.
- Although there is capacity to respond to zoonotic disease outbreaks within 24 hours, there is no centralized funding mechanism to cover the activities of the zoonotic committees.
- Registration of all premises used for livestock slaughter, and an awareness programme to reduce illegal slaughter and sale of animals and animal products, are needed to improve comprehensive use of ante mortem inspection (passive surveillance).
- A system for animal identification and traceability is lacking, which is critical for managing livestock, promoting animal breeding and husbandry, and improving disease surveillance and control.
- The current list of notifiable diseases should be reviewed and updated with clear case definitions to support the veterinary para-professionals and the field veterinarians, both government and private. "Syndromic" surveillance should be developed for key diseases of concern so that they are reported promptly, for example, neurological cases in cattle which requires a differential diagnosis for bovine spongiform encephalopathy (BSE).
- Selected staff should be trained as risk analysis specialists.
- More textured data and granular analysis should be incorporated into the animal health database; and in collaboration with MoHCC, the cost-benefit analyses of preventing zoonotic outbreaks should be conducted to underpin advocacy for greater resource allocations.

### P.4.2 Veterinary or animal health workforce – Score 3

#### *Strengths/best practices*

- Established training institutions with reputable training curricula that meet the needs of the country exist.
- There is professional collaboration between key partner ministries particularly in the implementation and enforcement of public health regulations, as well as the regulations on quality and usage of drugs and medicines.
- The animal health workforce is capable of conducting One Health activities at national, provincial, district, and sub-district levels.

### *Areas that need strengthening/challenges*

- A high number of veterinary positions remain vacant at the district level (> 40%), negatively impacting support and supervision for the delivery of disease control programmes (including priority zoonoses).
- To address the worryingly high vacancy rate of veterinarians at the district level, attractive retention schemes need to be urgently established to retain experienced staff; and lobby for the reversal of the current freeze on recruitment, particularly for those with high impact on public health delivery.
- Private sector participation in disease surveillance and reporting needs to be substantially enhanced.
- Current legislation on the required competencies for ante and post mortem inspection at slaughterhouses allows inappropriate and untrained people to undertake this work. The qualifications and knowledge of veterinary para-professionals undertaking this role need to be better defined; and these staff should receive training to allow them to assess and register slaughter premises.
- To promote better understanding and compliance of farmers with the requirements of relevant zoonotic control programmes, greater public awareness and a strong compensation mechanism needs to be implemented to encourage reporting of priority diseases.

### **P.4.3 Mechanisms for responding to infectious and potential zoonotic diseases established and functional – Score 3**

#### *Strengths/best practices*

- Informal committees for zoonoses at national, provincial, and district levels, and monthly meetings are being held regularly.
- The country has a list of notifiable animal diseases that includes important zoonotic diseases in line with OIE and WHO guidelines; and government-funded programmes for surveillance and control of priority zoonotic diseases exist.
- Established institutions for field surveillance, lab diagnosis, and mechanisms for a coordinated response to zoonotic outbreaks are in place.
- Although there is regular exchange of information between the Department of Livestock and Veterinary Services (DLVS) and the Ministry of Health and Child Care (MoHCC), there is need to make this more systematic and improve timeliness.

#### *Areas that need strengthening/challenges*

- There is a need for increased formal meetings across sectors and a Memorandum of Understanding to cover specific areas of responsibility.
- Develop SOPs for information sharing and outbreak investigations to ensure regular, timely, and systematic exchange of information between DLVS and MoHCC.
- Greater commitment is required to control major zoonoses, such as rabies and anthrax, at source. The DLVS should lobby to gain increased funding for the control of these diseases including field surveillance and lab diagnosis with the support of both, the government and private sectors.
- Contingency plans should be developed with generic emergency disease management procedures and capabilities. This requires support from across the array of government agencies. Other important diseases such as brucellosis and TB should also be considered as priority zoonotic diseases.
- Strengthen capacity of the Rapid Response Teams (RRTs) for responding to zoonotic diseases outbreaks
- Consider establishing a "One Health Centre" and develop a comprehensive One Health policy and strategy to guide actions.



# 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.*

## Zimbabwe level of capabilities

Food safety emergencies in Zimbabwe are dealt with by Rapid Response Teams (RRTs) who are responsible for responding to all public health emergencies. Set protocols are available for specific foodborne illnesses such as cholera and typhoid, including guidelines for specimen collection and testing.

Food safety related events occur quite frequently in Zimbabwe yet surveillance and reporting remain inadequate. A major cholera epidemic occurred in Zimbabwe in 2008 with 98585 reported cases and 4287 deaths. *Campylobacter* infections in humans have been widely reported in Zimbabwe and poultry were the likely source of food contamination.

The Environmental Health Technicians from local authorities and the Ministry of Health and Child Care (MoHCC) are empowered by the Public Health Act [15:09] and the Food and Food Standards Act [15:04] to inspect and collect samples from where food is sold or prepared. Although many elements of food safety are covered in the legislation there is poor coordination among the agencies responsible for food safety, and currently there is no national food safety policy and strategy in place. Although labs covering most aspects of food safety exist they need international accreditation in line with IHR (2005) requirements.

Food inspection in Zimbabwe is generally weak partly due to the fact that inspection services are split between various departments and ministries and a lack of proper training of personnel. Food, especially meat, can be contaminated during slaughtering if good slaughtering practices or procedures are not adhered to. Available statistics show that the prevalence of suspected anthrax cases in Zimbabwe was as much as 1 per hundred thousand population in 1999 and 2 per hundred thousand in 2002. This indicates that anthrax, which is a foodborne disease from meat, is common in the country.

In recent years, there has been a growing shift in Zimbabwe, from eating home-prepared food to consumption of ready-to-eat foods, which are often sold as street foods in many places, particularly in towns. Street food vendors provide an essential service to workers, shoppers, travellers, school children, and people on low incomes. However, the hygiene aspects of the vending operations are a major source of concern for food control officers as street-vended foods are often associated with food poisoning. It is estimated that about 80% and 53% of the cooked vended foods are highly contaminated with *S. aureus* and *E. coli*, respectively.

Like in many other developing countries, the drivers of foodborne diseases in Zimbabwe include poverty, rural-urban migration, poor environmental hygiene and sanitation, inadequate investments in public health, and inadequate disease surveillance. The lack of a national food safety policy and strategy, and weak communication and information systems also compound the problem.

A key recommendation is to aspire to ameliorate these factors by building efficient and integrated food safety systems covering the entire food chain. These systems must be developed in close collaboration between health and the food production/agriculture sectors. Some operational links between agencies have been established, but the collaborations are only active during emergencies; and there is a lack formalized collaboration on many aspects of food safety.

## Recommendations for priority actions

- Review and update food and food safety legislation which is outdated; and develop a national policy and strategy on food safety.
- Enhance capacity of relevant sectors dealing with food safety by:
  - Timely recruitment, training, and retention of skilled personnel.
  - Participation of key stakeholders in international food safety fora.
  - Provision of logistic and operational support to enhance capacity for surveillance, lab diagnostics and responding to food safety emergencies.
  - Development of an integrated information management system and ensuring international accreditation of laboratories responsible for food safety.
- Develop and implement operational frameworks based on the existing OIE PVS Gap Analysis that specify the actions necessary to promote safety of food products of animal origin.
- Develop appropriate terms of reference and an MoU to facilitate and enhance coordination among agencies dealing with food safety.

## 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*

- International standards and good practices for production of safer food and the prevention of foodborne diseases are being implemented and promoted along the value chains.
- The country has mechanisms for detection and response to foodborne illnesses, using the RRTs for public health emergencies.
- There are well-established protocols for responding to some specific foodborne diseases such as cholera and salmonellosis.
- Legislation, policies, and regulations covering food safety aspects exist, but are outdated.
- Mechanisms exist for information exchange, among entities represented in the RRTs (e.g. the Sanitary and Phytosanitary Committee meetings), during investigation of suspected foodborne disease outbreaks.
- Existing institutions that conduct food safety surveillance include Environmental Health, City Health, the Government Analyst Laboratory (GAL), and the Central Veterinary Lab (CVL).

### *Areas that need strengthening/challenges*

- Food legislation needs to be updated, and a national policy and strategy for food safety needs to be formulated.
- Capacity for surveillance, diagnosis, and responding to food safety emergencies needs to be strengthened through technical assistance, adequate equipment, and a secured supply of lab consumables.
- International accreditation is lacking for laboratories responsible for food safety.
- Coordination among agencies responsible for food safety needs to be strengthened.
- As a matter of priority, vacant posts need to be filled and existing staff re-trained to refresh their knowledge on food safety competencies.
- Meat inspection in slaughterhouses is not being performed according to international standards. Currently, inspections are carried out by medical staff and not the veterinary services.

# 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.*

## Zimbabwe level of capabilities

Zimbabwe has three Biosafety Level 3 (BSL3) laboratories - two for human health, based at the National Microbiology Reference Laboratory (NMRL), and one for animal health. The isolates for cholera and salmonella typhi are contained at the NMRL. The human health laboratories need to be refurbished and the veterinary laboratory needs to be made fully functional. The National Biotechnology Authority (NBA) is mandated to register all facilities used for biological and molecular work.

The legal and administrative frameworks that govern the issues of biosafety and biosecurity include the National Biotechnology Authority Act [Chap. 14.31] of 2006; the National Biotechnology Policy of 2005; the National Biosafety Framework and Lab Safety Manuals. The National Biotechnology Authority (NBA) assesses safety aspects of imports and exports of biologically-derived materials and research activities in a bid to minimize impact of new and emerging technologies on national security. However, the Authority regulates only products and not dangerous pathogens. A national policy on biotechnology and biosafety exists, but Zimbabwe does not have a dedicated agency to deal with biosafety and biosecurity.

Inspections, spot-checks, and audits are used to monitor biosecurity and biosafety activities, and these are in place. Information dissemination is done through periodic workshops and through the NBA website. A Third-Party Assessment has been done for the Tuberculosis (TB) laboratory. For the animal health lab, annual assessments are being conducted by the office of the Director of Veterinary Services in collaboration with the Zimbabwe Council of Veterinary Surgeons, and biannually by the NBA.

For biosafety cabinets, service contracts are in place to monitor whether they are functioning well. There is a system in place to ensure that all laboratories are licensed. Newly constructed laboratories are inspected to check for compliance in terms of availability of personal protective equipment (PPE); environmental

fitness; control of access; presence of fire extinguishers, skilled personnel, and registered personnel; and, availability of water and power. The country has an Official Secrets Act that manages the release of sensitive security information. Moreover, there is a system in place to conduct internal and external audits.

## Recommendations for priority actions

- Develop comprehensive legislation and the associated set of regulations for managing biosafety and biosecurity, encompassing human, animal, and environmental health.
- Finalize the draft Emergency Response Plan for responding to incidents concerning biosafety and biosecurity.
- Conduct a training needs assessment and develop a training program on biosafety and biosecurity that includes development of curricula and a plan for the training of trainers.
- Finalize the draft national policy for the management of waste, including dangerous pathogens.
- Develop options and a national policy for the vaccination of laboratory health workers especially those dealing with dangerous pathogen (e.g. Hepatitis B, among others).

## Indicators and scores

### P.6.1 Whole-of-government biosafety and biosecurity system in place for human, animal and agriculture facilities – Score 1

#### *Strengths/best practices*

- There are biosafety cabinets to protect users from dangerous pathogens, and these are serviced locally.
- Assessment of the animal health lab is done annually by the Council of Veterinary Surgeons and biannually by the National Biotechnology Authority (NBA).
- All labs in the country are licensed.
- Staff working at the animal health labs receive pre-exposure vaccination for rabies.
- Procedures for the safe and secure transportation of cultures, specimens, samples, and other contaminated materials have been established, and follow IATA regulations and the Lab Safety Manual guidelines.
- There are qualified personnel who have basic competencies in biosafety and biosecurity; they can identify biohazards and are fully cognizant of the safety measures required.
- The country utilizes diagnostic tests that eliminate the need for culturing dangerous pathogens e.g. rapid diagnostic test (influenza), gram stain (anthrax), and Gene Xpert (TB).

**Best Practice:** Free-of-charge provision of HIV prophylaxis for laboratory functionaries.

#### *Areas that need strengthening/challenges*

- There is no specific national regulation(s) for biosafety and biosecurity in Zimbabwe.
- The country does not have a Biosecurity Level 4 (BSL4) lab for either human or animal health. Pathogens that require Level 4 biosafety are referred to the Regional reference laboratory based at the National Institute of Communicable Diseases (NICD) in Johannesburg, South Africa.
- At the Ministry-level there is inadequate funding to support biosafety and biosecurity programs, including their oversight and enforcement. The draft emergency response plan has not yet been adopted and currently there is no specific action plan for biosecurity and biosafety control measures.
- Central, provincial, and district labs are not yet ISO-accredited.

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

### *Strengths/best practices*

- Relevant training institutions have included modules on the issue of biosafety and biosecurity in their training curricula.
- There is a strong commitment for the provision of resources for all laboratory facilities and there is a budget set aside for maintenance and equipment used in these facilities.
- The country conducts competency assessments and performance reviews to monitor the competencies of laboratory staff.
- There is an accidents logbook in the human health and veterinary labs for systematically documenting, reporting, investigating, and addressing any incidents and accidents at the facility.
- Lab scientists were trained and certified for handling dangerous pathogens by WHO.

### *Areas that need strengthening/challenges*

- There is no comprehensive training programme specifically on biosecurity and biosafety for facilities housing or working with dangerous pathogens. A training needs assessment has not been conducted, and a programme for training of trainers needs to be developed.
- Post-exposure prophylaxis treatment is not provided to laboratory workers in all facilities. Also, due to lack of a clear vaccination policy for lab staff, only pre-exposure vaccination for rabies is available for free.
- Insufficient allocation of resources (financial and human) negatively impacts proper and timely maintenance of facilities and equipment, including the stock and availability of PPEs which tend to run out.
- The waste management policy for the handling of dangerous pathogens is still in draft form.

# 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.*

## Zimbabwe level of capabilities

Zimbabwe has an expanded immunization program targeting children under 5 years of age, and focusing on Polio, Rubella, Measles, Diphtheria, Rotavirus, Tetanus, Hepatitis B, TB, Pneumococcus and Pertussis. The target for coverage is 95% for all of them. Zimbabwe's immunization plan does not include any zoonoses but post-exposure prophylaxis for rabies is available. There are focal persons for the Expanded Programme on Immunization (EPI) at the province and district levels but not all posts are filled. Rotavirus vaccination was included in the EPI four years ago and there are plans to start cholera and typhoid vaccination.

In Zimbabwe, immunization is voluntary and incentives to encourage routine vaccination include: outreach programs (to reduce walking distances); mobilisation campaigns; use of village health workers for social mobilisation; free treatment of children who are ill with other conditions when they come for immunisation; free vaccination; national immunisation days; school immunisation programs and media support. Vaccine coverage is tracked through Pentavalent and Measles vaccination through routine data collection and surveys. The program receives support from WHO, UNICEF, World Vision, Zimbabwe National Statistics Agency (ZIMSTAT), and the Maternal and Child Health Integrated Program (MCHIP). Coverage for measles in 2017 was 89%. Almost all provinces achieved the standards for polio-free certification.

There was a measles outbreak in 2009-2010 associated with a lower overall coverage of measles vaccination due to problems with financing of the program. In July 2016 there was a comprehensive review of the EPI resulting in recommendations on what to improve.

The national vaccine delivery system ensures continuous cold chains for vaccine delivery using refrigerated trucks for transportation. Zimbabwe reaches all districts with vaccine delivery, and it no longer has stock-outs at central level and only rarely at the district level. In addition, every province has a cold room where they store vaccines and every clinic has a solar-powered fridge where they can store vaccines. The temperatures in the fridges are monitored using thermometers and data loggers. To ensure a sustainable program delivery system there is dedicated transport, staff, cold rooms, communication, continued financial and technical support, from government and partners.

## Recommendations for priority actions

- Establish better local population estimates to calculate a more accurate coverage and reduce stock-outs due to poor forecasting.
- Investigate reasons for children not being immunized and address these obstacles to reach the target coverage in all districts.

- Review existing funding streams and create contingency plans to deal with the potential loss of external funding sources.
- Reduce staff turnover by, for example, motivation packages (timely promotions, recognition of good work, performance awards).
- Assure funding for maintenance of cold-chain.

## Indicators and scores

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

#### *Strengths/best practices*

- National immunization program and plan in place and in use.
- Several incentives are available to encourage vaccination.
- Vaccine coverage is regularly monitored, and results are shared.
- Program receives support from various partners.

#### *Areas that need strengthening/challenges*

- Population figures are not reliable. Population census from 2012 and coverage in some areas sometimes reported as > 100 %.
- Vaccination coverage is not optimum and needs to improve.
- Staff turnover and posts not filled, especially at the health-post level

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

#### *Strengths/best practices*

- Efficient vaccine storage and delivery system.
- Dedicated human and financial resources from the government and partners.

#### *Areas that need strengthening/challenges*

- Better data analysis and forecasting at district level to avoid any stock-outs.
- Financing of vaccination is largely donor-funded which makes the program vulnerable.
- Not all vaccine storage facilities have an appointed manager.
- Financing for maintenance of cold-chain (refrigerators, temperature-monitoring, and refrigerated trucks) is lacking.



# 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.*

### Zimbabwe level of capabilities

Zimbabwe enjoys a strong public health laboratory network system which pools human and technical resources for rapid identification, confirmation, and response to outbreaks and events. The right technical expertise and skills are available where and when they are needed most. The tiered laboratory system includes three reference, five central, eight provincial, and 64 district/mission/private/city-health labs. More than 1500 other laboratories are attached to clinics all over the country. Responsibilities of laboratories at each tier are well-defined in a policy document.

The laboratory services in Zimbabwe can conduct six core tests (of the 10 listed under the IHR). All six core tests can be done at national level, and four at the sub-national level. A laboratory handbook to guide clinicians on specimen collection and transportation has been developed and is being used in some laboratories. Results are delivered using courier services from the national level.

Some national labs are accredited or internationally certified. For example, the National Microbiology Reference Laboratory (NMRL) and the Central Veterinary Laboratory (CVL) are ISO 15189 and ISO 17025 certified, respectively. The National Polio Laboratory (NPL) is WHO certified. Guidelines and protocols for quality management system are enforced and in use by all human and animal health laboratories. Laboratories also participate in External Quality Assurance (EQA) through proficiency testing as provided by Zimbabwe National Quality Assurance Program (ZINQAP), The National Institute of Communicable Diseases (NICD) in South Africa, and others.

There is an established veterinary laboratory network and all veterinary labs are now mandated by law to register and make their reports available to the central veterinary reference lab. Zoonotic disease laboratory data are shared using the weekly surveillance reports. Personal Protective Equipment (PPE) is available for laboratory staff and tracked using a stock card inventory system or an electronic database. Trainings for PPE use, biosafety, and biosecurity is done by the safety officers and standard operating procedures are available. The core tests have national algorithms. There is a guideline for rolling out modern point of care and laboratory-based diagnostics.

The laboratory quality systems are monitored by Medical Laboratory and Clinical Scientist Council (MLCSC) and the Health Professionals Authority (HPA) of Zimbabwe, for human health; while the Council of Veterinary Surgeons of Zimbabwe monitors lab quality for animal health.

A courier system for specimen transportation is available, however there are mechanisms for quicker transportation of lab samples in case of outbreaks using ambulances. Laboratory results are sent to recipient labs by phone and the courier system.

Despite impressive progress, several challenges still confront the laboratory services network in Zimbabwe. The country's human resource capacity for the laboratory services is very low, with more than 50% of the posts lying vacant. Staff, where available, require additional training. The national laboratory strategic plan and policy is yet to be implemented. The population that has access to diagnosis of priority pathogens is not known and the national bacteriology reference laboratory has not been accredited. Generated waste is not appropriately managed. The available biosafety cabinets are not installed. A vaccination scheme for laboratory workers is no longer implemented. There is inadequate workspace and lack of equipment maintenance agreements. Human and animal disease surveillance systems are not inter-operable. The country is also yet to decide on the other four core priority tests that it may wish to be able to conduct. There is no adequate equipment, media, reagents, and consumables for isolation. There is also no national body for laboratory accreditation. The laboratory data is not well integrated into the national disease surveillance program. Clinicians in private practice have not been making use of the national public health laboratory network. The veterinary lab has a lot of obsolete equipment which needs to be replaced. The supply of reagents and consumables is not secured and requires attention.

## Recommendations for priority actions

- Implement the national laboratory strategic plan and policy.
- Develop and implement a plan for use of point of care diagnostic testing.
- Develop and implement a national plan for reagents, equipment and consumables supply.
- Agree on four core priority pathogens for surveillance testing.
- Establish a sustainable funding mechanism for specimen transport.
- Advocate for the establishment of a national lab accreditation body.
- Develop and establish material transfer agreements for the movement of biological materials to external labs.

## Indicators and scores

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

#### *Strengths/best practices*

- Availability of national laboratory strategic plan and policy.
- Establishment of public health laboratory network for human and animal health.
- Tiered referral system.
- Laboratories are implementing quality management systems.
- SOPs for all core tests have been prepared.
- Laboratory inspection system including EQA is available.
- National diagnostic algorithms for performance of core laboratory tests are aligned with international standards.

- Official agreements with labs outside the country for specialized testing not available in country.

#### **Areas that need strengthening/challenges**

- Implementation of the national laboratory strategic plan and policy.
- More than 50% vacancy rate for laboratory personnel.
- Inadequate funding for reagents, media, consumables, and other lab equipment.
- The national bacteriology reference laboratory is not accredited.
- Integrated data management between labs and the national surveillance network.

### **D.1.2 Specimen referral and transport system – Score 4**

#### **Strengths/best practices**

- Courier service contracted, funded, and paid by the government through a dedicated account.
- Ambulances available for transporting specimens especially during outbreaks.

#### **Areas that need strengthening/challenges**

- No national policy or guidelines on specimen archiving and bio-banking.

### **D.1.3 Effective modern point-of-care and laboratory-based diagnostics – Score 2**

#### **Strengths/best practices**

- Plan in place to improve the availability of point of care diagnostics at clinical sites in the country.
- Some laboratories already deploying point of care technology for testing.

#### **Areas that need strengthening/challenges**

- Advocacy to scale up the use of point of care diagnostics technology in the tiered public health laboratory network.
- Capacity building on point of care technologies.

### **D.1.4 Laboratory quality system – Score 2**

#### **Strengths/best practices**

- Enforcement of quality management by professional regulatory bodies in human and animal health.
- Annual laboratory inspection by regulatory bodies.
- Legislative backing for mandatory registration and reporting by animal health laboratories.

#### **Areas that need strengthening/challenges**

- No national body in charge of laboratory certification and accreditation.
- Absence of specific national document on registration procedure for in vitro diagnostic medical devices.
- Need for mandatory licensing of all laboratories.

# 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.*

### Zimbabwe level of capabilities

Zimbabwe has developed an indicator-based human disease surveillance system using the District Health Information Software version 2 (DHIS2). The system integrates all reports from different programmes e.g. TB, HIV, and malaria, including the weekly report of aggregated data on other notifiable diseases and syndromes. The system has the capacity to share information through pivot tables, charts and maps which are used to generate weekly epidemiological reports, health profiles, and situation reports during outbreaks. The weekly epidemiological reports are produced at the central level, which is supplemented by monthly and annual analyses by a special team at MoHCC. These reports are shared with stakeholders at all levels. Considering the limited resources, the surveillance system seems to work well.

Syndromic surveillance for more than three core syndromes such as watery diarrhea, bloody diarrhea, acute flaccid paralysis (AFP), influenza etc., are included as reportable in the surveillance system. However, no event-based system is in place yet, which would have made the surveillance system more sensitive.

Reporting from the lowest level is done by Short Message Service (SMS, i.e. text messaging) to the district level where it is fed into the DHIS2 and the data is aggregated. Routine reporting is done weekly. Immediate reporting, followed by district-level investigation, is mandatory if any listed outbreak-prone disease such as cholera is suspected. There are alert thresholds for when to report to the next administrative level, and action thresholds for when to definitely act. The alert and action thresholds depend on whether it is a suspected or a confirmed case, or if there is a cluster of cases. Case-based reporting is done on a paper form with three copies (for district, province, and national level) and not via DHIS2, but the data are included in the weekly epidemiological bulletin. Plans are at an advanced stage to also do case-based reporting electronically.

There is no specific event-based surveillance but rumours and media reports, for example, sometimes lead to investigation of possible threats to public health. District authorities are contacted and asked to investigate rumours or media reports picked up at central level. A mobile phone application for event-based veterinary surveillance is to be piloted by FAO in the near future.

The human disease surveillance system is only partly electronic and not real-time for the most part. The veterinary surveillance system is not electronic and there is no linkage or interoperability between the animal and human health surveillance systems.

## Recommendations for priority actions

- Integrate reporting from other sources like media, rumours, and reports from traditional healers by organizing an event-based surveillance system.
- Organize electronic surveillance system for animal health and make this interoperable with the system for human health.
- Train and orient staff at regional and local levels when and how to interpret and act on data.

## Indicators and scores

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

#### *Strengths/best practices*

- There is a district health information system which the country is using to report surveillance data, with a built-in data validation and verification system.
- There is a disease surveillance report on epidemic-prone diseases, which is produced weekly.
- There is good mobile phone network coverage across the country. Standard data collection tools which are used in all health facilities transmit data to the district level using Frontline SMS software.

#### *Areas that need strengthening/challenges*

- Data transmission from the health facilities to the district level could improve as staff do not always act as quickly as they should. There is need for further training.
- Data collected from the health facilities is mostly aggregated and not patient-level data. Better links between labs and patient care are needed for quicker reporting of confirmed cases of notifiable diseases.

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

#### *Strengths/best practices*

- Zimbabwe adopted and adapted the Integrated Disease Surveillance and Response (IDSR) strategy of WHO AFRO, and it is being applied in the training of all health workers in disease surveillance.
- There is a mechanism for feedback from the national to subnational level.

#### *Areas that need strengthening/challenges*

- Lack of trained staff at health facility level and high staff turnover.
- Unreliable network and internet connectivity across the country is hampering real-time reporting.

### D.2.3 Integration and analysis of surveillance data – Score 4

#### *Strengths/best practices*

- DHIS2 has a built-in program that can generate reports, tables and graphs which are used for analysis of disease trends.
- Coordination and feedback mechanisms in the form of national taskforce meetings, as well as, subnational taskforce meetings.
- National weekly disease surveillance report on epidemic-prone diseases shared among all levels, by e-mail or on paper.

### *Areas that need strengthening/challenges*

- Analysis of data and its use is limited at the district and sub-district levels. There is need to strengthen the link between data analysis and the response.
- Feedback from the provincial and district levels to the sub-district level should be improved all the way down to the health facility level.

## **D.2.4 Syndromic surveillance systems – Score 4**

### *Strengths/best practices*

- Availability of guidelines for syndromic surveillance of patients with suspected health conditions such as dysentery, cholera, acute flaccid paralysis (AFP) etc.
- Joint surveillance and exchange of information, to facilitate coordination and collaboration, takes place when needed with animal health counterparts and the zoonotic committees, for example in relation to dog bites, anthrax, and snake bites.

### *Areas that need strengthening/challenges*

- There is need to strengthen information exchange on the syndromic approach.
- Surveillance data should be linked to action at the local level according to the guidelines that exist, with defined thresholds for alert and action.
- Better feedback and training from district level to health facilities is required.

# 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.*

## Zimbabwe level of capabilities

Reporting within Zimbabwe is done through the District Health Information Software version 2 (DHIS2) system where data is electronically transmitted from health facilities directly into DHIS2. Some of the health facilities are still using paper-based reporting (e.g. T3, T5, and T6 forms) to report to the district level, who in turn consolidate the data and enter them into DHIS2 and submit them to the national level electronically. The use of DHIS2 has facilitated real-time reporting and improved the timeliness (more than 80%) and completeness (more than 90%) of reports, as prescribed by WHO. The data is classified as Routine and Case-based Surveillance.

The Ministry of Health and Child Care has designated the Directorate of Environmental Health as the IHR National Focal Point (NFP). The National Focal Person is the Director of Environmental Health. However, the department lacks qualified staff to aid the IHR National Focal Person in carrying out his duties in an effective and efficient manner. In the event of an emergency, individuals from Civil Protection Units, Animal Health, and other sectors such as non-governmental organizations are assisting the IHR National Focal Person. The OIE delegate is based at the Ministry of Agriculture and works in collaboration with the IHR NFP and the food safety authorities. The two delegates share information at an ad hoc level.

The implementation of IHR in Zimbabwe was tested by a major cholera outbreak in 2008–2009. In January 2018, the IHR NFP notified the WHO IHR contact point about a cholera outbreak in Chegutu area within 48 hours of the occurrence of the outbreak, as prescribed in Annex 2 of the IHR document. The notification prompted a multisectoral response to the outbreak. The OIE delegate in Zimbabwe also reported the avian influenza (H5N8) outbreak to OIE in 2017. Although the IHR NFP and the OIE delegate are working collaboratively to fully implement IHR (2005), there is need to strengthen the data sharing mechanism between the two for more efficient reporting to WHO, OIE, and FAO.

## Recommendations for priority actions

- Establish a mechanism for systematic information sharing/exchange between the IHR National Focal Point (NFP) and, the OIE delegate; the focal points for food safety, radiation emergencies, and chemical events; the designated focal point for security.
- Fast track the development and dissemination of guidelines and SOPs for reporting events of concern to WHO and OIE.
- Conduct regular training and simulation exercises for national IHR focal persons and the OIE delegates, to continuously improve reporting of potential public health emergencies of national/international concern and zoonotic events.

- Institutionalize and facilitate closer working arrangements between the zoonotic disease unit and their counterparts in human health.

## Indicators and scores

### D.3.1 System for efficient reporting to FAO, OIE and WHO – Score 3

#### *Strengths/best practices*

- The IHR National Focal Point (NFP) for the country is established and there is a platform for information exchange between the Ministry of Health and WHO, and between the Ministry of Agriculture and OIE.
- Existence of coordination and response forums (e.g., the Zoonotic Sub-committee and the Civil Protection Sub-committee meetings).

#### *Areas that need strengthening/challenges*

- There is a need to further strengthen coordination for IHR implementation, which is hampered by the absence of IHR implementation guidelines that are specific to the Zimbabwean context.
- No reports are being received from private sector institutions.

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

#### *Strengths/best practices*

- Existence of surveillance systems for both animal and human health, and communication around it.
- From the district level upwards all reporting is electronic, and paper-based system has been eliminated.
- Existence of coordination and response forums (Zoonotic and Civil Protection sub-committees).
- Data quality assurance through conduct of assessments, reviews, and periodic on-site data verifications (OSDVs).

#### *Areas that need strengthening/challenges*

- Current legislation does not specifically articulate public health emergencies of international concern (PHEICs) or the IHR (2005). However, the new Public Health Bill of 2017, which is currently under review, incorporates these aspects and thus presents an opportunity.
- Limited resources available at the national level to fulfil the IHR core capacity requirements.
- There is need to include the private healthcare sector into the national health information and surveillance system.
- Need to strengthen capacities to analyze data at the local level to facilitate early detection of possible outbreaks.



# 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).*

## Zimbabwe level of capabilities

Zimbabwe has a strong public health workforce, educated through several different degree programs in local institutions. These degree programs span multiple disciplines: MPH in Field Epidemiology; MSc in Environmental Health; MSc in Epidemiology and Biostatistics; MSc in Clinical Epidemiology; MPH Health Promotion; MSc in Nursing; and Master's in Medical Microbiology. While it is an advantage to have multiple degree programs, there is currently no standardization of competencies or curricula across programs. This results in varying levels of skill and capability among graduates. There are currently many vacancies across all sectors, which cannot be filled due to the government's hiring freeze. This is most evident at the sub-national level where there is a critical shortage of staff needed to effectively implement IHR (2005). An accredited advanced Field Epidemiology Training Programme (FETP) enrolls participants from multiple ministries, including the Ministry of Health and Childcare, Ministry of Agriculture, and Ministry of Defence. A short-course training for district-level Ministry officials used to be offered, but it was discontinued due to lack of funds. Reviving this training would be useful for improving epidemiology and management skills and providing motivation for health workers at the sub-national level. There is a Human Resources for Health (HRH) strategy that was updated in 2017 that includes human public health professions, but it does not address the entire workforce necessary for effective implementation of IHR, most notably, animal health professionals.

## Recommendations for priority actions

- Advocate to lift the hiring freeze and fill critical unfilled positions, especially at district/provincial levels.
- Develop core competencies that all public health training institutions agree to achieve through their curricula.
- Revive the basic Field Epidemiology Training Programme (FETP) or short-course field epidemiology training at the district level.

## Indicators and scores

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

#### Strengths/best practices

- Workforce includes multiple disciplines (veterinarians, environmental health specialists, epidemiologists, laboratory specialists, etc.).

### *Areas that need strengthening/challenges*

- High vacancy rates throughout the system; posts cannot be filled due to the hiring freeze.
- Master's in Public Health (MPH) training programs are all independent and do not have common competencies or curricula across institutions.
- Systematic collaboration of multidisciplinary workforce not evident during non-emergency times.

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

#### *Strengths/best practices*

- Advanced FETP trains workers from multiple Ministries (e.g. Health, Agriculture, Defence) and is accredited by the Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET).

#### *Areas that need strengthening/challenges*

- A short course epidemiology and management training used to take place but was discontinued due to lack of funding. It would be helpful to revive this program to help with continuing education and retention of workers at the sub-national level.

### **D.4.3 Workforce strategy – Score 3**

#### *Strengths/best practices*

- Workforce strategy exists that includes key public health professions (e.g. laboratorians, epidemiologists).

#### *Areas that need strengthening/challenges*

- The workforce strategy includes only human health professions and no animal health workforce strategy exists.
- The strategy was updated in 2017 for implementation from 2017-2020, but it has not been officially approved – it is still in draft form.
- There is a need for organized, regulated, and continuous professional development training.
- Poor incentives and low motivation of the workforce encourage staff attrition.

# 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.*

### Zimbabwe level of capabilities

Zimbabwe has a multi-hazard public health emergency preparedness and response plan developed in 2012 by the Ministry of Health and Child Care (MoHCC), Local Authorities, key partners, and other government departments, with technical support from the WHO Country Office. The plan outlines the activities to be carried out during emergencies. Areas of work described in the plan include: an operational response structure, surveillance, case management, logistics during emergencies, communication strategy, laboratory diagnostics, and public health measures. However, the plan was developed without taking many of the requirements under IHR (2005) into consideration.

Zimbabwe has developed disease-specific guidelines for typhoid, yellow fever, cholera, rabies, and anthrax. Preparedness and response plans were also prepared for Ebola Virus Disease (EVD) and Pandemic Influenza, and a simulation exercise for Ebola has been conducted. The country also has guidelines for the National Emergency Operations Centre (EOC) and a Public Health Emergency Operational Guide. Cities and provinces have their own emergency preparedness and response plans, but not always in documented form (e.g. there is one documented for the city of Harare).

Health workers have been trained on case management, integrated disease surveillance and response (IDSR), and rapid response team (RRT) operations.

In terms of governance, there are strong multisectoral and multi-disciplinary coordination mechanisms in place, operationalized through the Department of Civil Protection. The Department of Civil Protection also manages the resource mobilization mechanism for emergency response.

In terms of medical stockpiles, the National Pharmaceutical Company (NatPharm) procures, stores, and distributes medical supplies, which can be used in emergencies. Quarterly supplies of medicines and commodities from NatPharm are prepositioned at the district level.

Public health emergency preparedness and response planning in Zimbabwe could benefit tremendously by leveraging the outputs of several recent exercises and initiatives from the wider Disaster Risk Management domain. The inter-agency group on Disaster Risk Management in Zimbabwe recently developed a multi-hazard mapping of risks, which mostly focused on floods and droughts. While the Ministry of Health and Child Care did not receive technical or financial support to conduct the Vulnerability Risk Assessment Mapping (VRAM) or the Strategic Risk Analysis exercise, the Vulnerability Assessment does however include the impact of these natural hazards on food security and nutrition of the population. The 2017 capacity assessment of the Disaster Risk Management (DRM) system in Zimbabwe, conducted under the leadership of the Department of Civil Protection, focused on national and sub-national capacities. The assessment provided a comprehensive multi-sectoral analysis of existing capacities, needs and gaps of the DRM system; a snapshot of risk and early warning information available across government and partners; and, a set of recommendations for reinforcement of capacities. The assessment included important elements on health, agriculture, and livestock that need to be integrated into emergency preparedness and response planning. The Resilience Building Fund established in Zimbabwe in 2015 provides mapping for hazards that can also be leveraged to include biological hazards. Furthermore, global, open-source risk assessment databases such as the Index for Risk Management (INFORM) includes risk profiling for Zimbabwe that can be used to inform decision-making and preparedness planning.

In summary, Zimbabwe does not yet have a documented and approved national public health emergency preparedness and response plan that meets the core capacity requirements under Annex 1A, Article of the IHR (2005). Furthermore, the country has yet to undertake a mapping of health risks and strategic resources available for deployment.

## Recommendations for priority actions

- Conduct a comprehensive multi-hazard and multisectoral national risk profiling exercise for public health emergencies.
- Conduct a national strategic resource mapping exercise which includes stockpiles, staffing, and funding available for emergency preparedness and response.
- Update the EPR plan considering the results of the risk profiling exercise and align the plan to cover all types of hazards as per Annex 1A of IHR (2005). Conduct simulation exercises/drills to test the plan.
- Put in place a dedicated EPR contingency fund with SOPs for decision-making about usage (i.e. triggers for use), and how to allocate resources and replenish used funds.

## Indicators and scores

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

#### *Strengths/best practices*

- The country has a national, multi-hazard emergency preparedness and response plan in place, as well as, at the sub-national levels, although these are not yet fully aligned with IHR (2005).
- There are multisectoral and multi-disciplinary coordination and resource mobilization mechanisms in place through the Department of Civil Protection, the Inter-Agency Coordination Committee for Health (IACCH), and the Ministry of Finance.
- There is a coordinated multi-sectoral response to outbreaks and epidemics, and strong involvement of all key stakeholder in the response activities.

### *Areas that need strengthening/challenges*

- Donors have not been forthcoming to support preparedness activities. Funding has been received for many natural hazards, but not prioritized for health issues.
- There is a need for more systematic and stronger collaboration with the Disaster Risk Management (DRM) authorities under the Department of Civil Protection, which also oversees the national emergency operations centre.
- The contingency fund for responding to all emergencies, including public health emergencies, is managed by the Department of Civil Protection.

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

### *Strengths/best practices*

- Contingency plans have been developed for various hazards.
- Funding for preparedness and response activities are made available rapidly when the need arises
- The various sectors are aware of sectoral risks, and where and when an emergency event is likely to occur.
- There is a dedicated workforce for emergency response at all levels.

### *Areas that need strengthening/challenges*

- A comprehensive, systematic, and up-to-date analysis and mapping of public health threats and risks, aligned to the IHR (2005) and using the One Health approach, needs to be undertaken to inform the programme of work on emergency preparedness and response.

# 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.*

## Zimbabwe level of capabilities

The country has established a physical space for an Emergency Operations Centre (EOC) capable of seating a dozen people, and has a document (developed in 2011, and available only on-line), which is expected to guide its activities and functions. There is an individual mainly responsible for organizing meetings in the EOC, and a senior MoHCC staff member who activates and presides over most of the EOC activities. In practice, the EOC to date is used as a meeting space only, with a routine of functionality, which is operative but not formalized in roles, practices, and administrative tools. It convenes personnel within the MoHCC and involves people from other Ministries on an ad hoc basis. The EOC organizes and empowers Rapid Response Teams and relates to the wider national Civil Defence EOC.

## Recommendations for priority actions

- The National Emergency Operations Guide needs to be updated urgently, with technical support recommended to come from an experienced international consultant to recommend revisions to the Guide, as well as to train staff during an incident and organize an After-Action Review (AAR) exercise.
- The EOC can rapidly become more operational by nominating and appropriately training a small group of key personnel from various relevant departments to deploy and fill critical EOC roles during an incident. Additional salary payments as an incentive may be necessary for this.
- It will be critical to develop a routine practice of carrying out After-Action Reviews (AARs) and, for events that do not occur in the country, conduct at least one multi-agency simulation exercise annually. It is the systematic review of these After-Action Reviews and Simulation Exercises that are the ongoing opportunities to improve the function of the EOC.

## Indicators and scores

### R.2.1 Capacity to activate emergency operations – Score 2

#### Strengths/best practices

- Zimbabwe can mobilize rapidly, often within 24 hours, but the procedures to do so are not well established. Who and what groups take part in a mobilization are determined only informally. Roles of the different personnel involved are not well developed, informal, and often spontaneous.

### *Areas that need strengthening/challenges*

- Creation of major roles and functions in a more formalized manner will improve the reliability of the EOC and its activities.
- The IHR focal person appears to only be partially involved in the activities of the EOC. Greater structure and the designation of responsibilities and roles will improve the reliability and repeatability of the EOC's functions

## **R.2.2 EOC operating procedures and plans – Score 2**

### *Strengths/best practices*

- The procedures are largely informal and spontaneous. They have worked in various mobilizations over the past years, but these mobilizations are not well assessed, and the roles and activities engaged in are largely spontaneous.

### *Areas that need strengthening/challenges*

- To make the Emergency Operations Centre (EOC) more operational, a director of the EOC should be nominated. Triggers for activation of the EOC should be made explicit. This does not need to be a full-time role; the person can be 'on call' with other routine responsibilities. In practice, there is a person who has the main responsibility to organize the EOC, record minutes, etc. That person should be trained, use the procedures book that is currently available, and be the prime trainee if an experienced international consultant is used to update the procedures book and train staff.
- Other key personnel from various relevant departments should also receive in-service training to deploy and fill critical EOC roles during an incident. Additional salary payments as an incentive may be necessary for this to occur, but the basic roles and procedures can be instituted without further staffing or salaries.

## **R.2.3 Emergency operations programme – Score 1**

### *Strengths/best practices*

- The EOC has been used repeatedly as a meeting space to coordinate emergency responses for the MoHCC.
- An important component of the system will be conducting and reviewing After-Action Reviews and Simulation exercises. These should be guided by the updated operations manual recommended earlier.

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

### *Strengths/best practices*

- Case management procedures exist only for cholera and Ebola.
- No table-top or functional exercises have been completed to test operational capacities.

### *Areas that need strengthening/challenges*

- Procedures should be developed more generally for the functions of the EOC, including staff rotation, nomination, and training of Rapid Response Team members, required roles, and organizations to be involved in EOC mobilizations

# 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.*

## Zimbabwe level of capabilities

Zimbabwe has platforms where the security and public health sectors meet to discuss pertinent issues, especially in relation to border control and public health events. However, at present there are no formal written agreements of cooperation and collaboration between the sectors. There is a need for improved coordination and written agreements, as well as the conduct of joint exercises and simulations for responding to events involving biological weapons and toxins.

The Zimbabwe National Army (ZNA), the Airforce of Zimbabwe (AFZ), Zimbabwe Prisons and Correctional Services (ZPCS), and the Zimbabwe Republic Police (ZRP) report disease surveillance and other incident-related data to the Ministry of Health through the DHIS2 system, and in turn receive weekly disease surveillance reports from the Ministry. The security forces have competent public health personnel who have been trained in the Field Epidemiology Training Programme (FETP). Security personnel also participate in joint investigations and trainings with MoHCC staff on integrated disease surveillance and response (IDSR).

The military and the prisons authorities participate in the Inter-Agency Coordination Committee for Health (IACCH). Defense, police, and border patrol personnel were involved in the establishment of the national Emergency Operations Centre (EOC), and during emergencies participate in EOC, IACCH, and Civil Protection Committee meetings. The security and military services provide surge personnel during outbreaks and support city authorities in implementing disease control measures during public health emergencies. The army and air force also provide logistics support and helicopters for transport and rescue operations during natural disasters. However, there have been no specific training or joint simulation exercises on the intentional or accidental release of dangerous pathogens.

Through the Ministry of Home Affairs, Zimbabwe links and coordinates with Interpol on matters of international security, including emergencies. There are Interpol offices in the country to which security officers from Zimbabwe are seconded for training and liaison.

Security agencies also foresee greater use of new technologies in the future including drones and geographical information systems for mapping and responding to public health emergencies.

Overall, due to lack of a strong legislative basis, there is a paucity of written protocols, MoUs, or other agreements, between human health, animal health, and the security authorities. Points of contacts in the different sectors, and the triggers for notifications and related actions, need to be discussed, agreed, and documented, through written agreements or protocols.



## Recommendations for priority actions

- Develop MoUs and agreements at national and intermediate levels between security, public health, and other sectors for joint risk assessments, investigations, and responding to public health events of significance to issues of security.
- Integrate aspects of public health and security coordination for identifying and responding to suspected biological incidents of deliberate origin into the overall EPR strategy, and then develop specific plans for potential biological threats.
- Develop SOPs for joint risk assessments that include triggers for notification.
- Involve security authorities in aspects of biosecurity and biosafety, including development of an inventory of dangerous pathogens stored in the country.
- Conduct periodic exercises and simulations for response to deliberate acts that involve leadership from both 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*

- Public health specialists serve in the security and military services. Data and information from these services are fed into the national health information system and consolidated regularly into the Weekly Disease Surveillance Report.
- The Airport Emergency Operational Plan for the international airport at Harare is in place for the coordination of joint responses to emergencies at the point of entry.
- Legislation is in place that allows the government to detain/quarantine an individual who presents a public health risk.
- The national government liaises with Interpol through the Ministry of Home Affairs on security and emergency matters of an international nature.

#### *Areas that need strengthening/challenges*

- There is no specific plan in place for coordination and responding to potential biological threats.
- Current coordination between various sectors is informal and based on personal relationships, with no formal MOUs or agreements between public health and other sectors at the national and sub-national levels.
- There is a need to conduct After-Action Reviews of suspected events and simulation exercises that involve biological threats.

# 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.*

## Zimbabwe level of capabilities

Zimbabwe's medical countermeasures capacities are limited, primarily due to the lack of formal plans and procedures for sending and receiving medical countermeasures during a public health emergency. Although formal plans are absent, Zimbabwe does have experience receiving medical countermeasures such as vaccines and personal protective equipment during emergencies. Within the country, there is no capacity to produce antibiotics, vaccines, and other countermeasures, so there would likely be a delay in getting them into the country during an emergency. There are no standing agreements with manufacturers or distributors to procure medical countermeasures and no regional/international agreements for procurement, sharing, and distributing countermeasures during public health emergencies. Domestically, there are dedicated facilities and staff for tracking and distribution of both human and animal health countermeasures, but limited resources available. There is currently a stockpile of medical countermeasures available for national use for an outbreak of cholera only.

The country does not have a formal plan to identify procedures for decision-making, training criteria and standards, or address regulatory and licensure concerns related to sending and receiving health personnel during a public health emergency. There is a general understanding that health personnel can be moved between different levels of government and requested from local and international organizations when needed to respond to emergencies, which has been utilized to respond to recent outbreaks of cholera and typhoid. Zimbabwe has received international medical personnel in emergency situations previously, but there are no formal procedures in place for acceptance and orientation of these staff. The country is not part of any regional/international personnel deployment agreement such as the Global Outbreak and Alert Response Network (GOARN); nevertheless, some health personnel from Zimbabwe deployed to West Africa to assist with the 2014 Ebola outbreak.

## Recommendations for priority actions

- Review relevant regulations governing medical countermeasures and personnel deployment to determine what legislation may facilitate or restrict import or export of medicines and personnel during emergencies.
- Based on the legal review, develop plans that outline systems for sending and receiving medical countermeasures and personnel during emergencies.

- Develop or join regional and international partnerships for procurement, sharing and distribution of medical countermeasures and sharing of personnel during emergencies (e.g. the Global Outbreak and Alert Response Network - GOARN).

## Indicators and scores

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

#### *Strengths/best practices*

- There are dedicated facilities and staff for tracking and distribution of countermeasures (human and animal).

#### *Areas that need strengthening/challenges*

- Limited procedures exist for sending and receiving medical countermeasures during a public health emergency and there are no plans in place.
- No standing agreements with manufactures/distributors or international partners to procure, share, or distribute medical countermeasures during public health emergencies.

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

#### *Strengths/best practices*

- Rapid Response Teams (RRTs) are available at all levels as first line of response.
- Staff can be moved between different levels of government and requested from local and international organizations when needed to respond to emergencies.

#### *Areas that need strengthening/challenges*

- Limited procedures exist for sending and receiving medical personnel during a public health emergency but no plans.
- No standing agreements with international partners to send or receive surge personnel during public health emergencies.
- There is a need for a formal agreement for surge staffing for local deployment during a public health emergency.

# Risk communication

## Introduction

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

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

### Target

*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.*

### Zimbabwe level of capabilities

There is no national plan for risk communication but there are multiple entities in the Ministry of Health and Child Care (MoHCC) that lead elements of risk communication. These include a Public Relations department, which generates messaging of relevance to the Minister's office; a Health Promotion Unit, which is designed to focus on population health practices; a Civil Protection Unit outside the MoHCC which generates its own messaging for emergencies; and a Health Information Unit which summarizes disease and health system relevant information.

There are no permanent or surge staff dedicated to risk communication during emergencies, and no staff have targeted training in such a role. Response plans, including communication plans, exist for several conditions, including typhoid and Ebola, but no general national orientation exists. Budget for communications personnel, materials, and activities for emergencies are not routine, they are instead created on an 'as-needed' basis. No plans have been tested as no simulations have been carried out, and no after-action reports have examined risk communications specifically.

## Recommendations for priority actions

- Develop an 'all-hazards' risk communication strategy and plan to be operationalized through the Emergency Operations Centre (EOC) and the other units dealing with communications in the MoHCC.
- Map, assess, and build national capacity for risk communication at all levels under the One Health approach.
- Establish a formal mechanism for rumour tracking/assessment and integrate it into an event-based surveillance and the risk communication plan.
- Establish a national Technical Working Group on risk communication, with appropriate terms of reference and inclusion of all relevant stakeholders.

## Indicators and scores

### R.5.1 Risk communication systems (plans, mechanisms, etc.) – Score 1

#### *Strengths/best practices*

- The various units of the MoHCC have staff involved in risk communications, though many of them may not recognize their tasks to be in this field as such.

#### *Areas that need strengthening/challenges*

- Communication, coordination, training, and planning for the various aspects of risk communication need to be developed.

### R.5.2 Internal and partner communication and coordination – Score 2

#### *Strengths/best practices*

- No systematic partner communication and coordination at the national level was identified. Partner NGOs and inter-ministerial actions occur on an ad hoc basis.
- The strongest aspect of risk communication to date is the ability and practice of sending out key messages from the national level to regional and local staff of the national health system, and to community volunteers beyond the healthcare system. This system reaches into many or most communities affected by an emergency and serves to provide ad hoc feedback when messages need to change.

#### *Areas that need strengthening/challenges*

- Training and planning will be needed to improve both the content of risk communication and the coordination with partners to improve it.

### R.5.3 Public communication – Score 3

#### *Strengths/best practices*

- Public communications primarily consist of statements to the press and social media by the Minister of Health. Assessment of the impact or even reach of these communications is rare; only one evaluation of communications for a disease-specific activity was identified (for Typhoid), carried out by a partner agency.

#### *Areas that need strengthening/challenges*

- Whether messages are timely and appropriate, and whether they are well understood and reach the intended audiences, is not well known. More formal mechanisms of communication using the media already employed as part of a national plan will assist in answering these questions.

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

#### *Strengths/best practices*

- The strongest aspect of risk communication in the health system appears to be the ability of primary care units to reach into communities using health volunteers of various types.

#### *Areas that need strengthening/challenges*

- Even this strongest aspect, utilizing both traditional and modern communication methods, remains informal and ad hoc.
- It appears that the combination of radio messages and cell phone messaging can reach nearly everyone in the country.
- Messages are prepared for several conditions, but more wider skills and preparation for responding to emergencies of various types need to be developed and tested to more fully use the capabilities of these systems.

### R.5.5 Dynamic listening and rumour management – Score 2

#### *Strengths/best practices*

- Only an informal system for listening and rumour management exist. The network of primary level health facilities and volunteers in communities provide effective, if ad hoc, systems of listening.

#### *Areas that need strengthening/challenges*

- Together with event-based surveillance, there is an excellent opportunity to systematize rumour management and listening via telephone and SMS hotline systems. As components of event-based surveillance at the national level, these systems can be instituted rapidly at little or no additional cost and using established technologies.

# 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.*

### Zimbabwe level of capabilities

Zimbabwe has identified 14 out of 17 points of entry (PoE) into the country to be formally designated for further development towards fulfilling core capacity requirements under the IHR (2005). These include three international airports and 11 ground-crossings. There is strong collaboration between the Health and other sectors at points of entry, including Immigration, Security, Environment, Chemical, and Animal Health. The majority of PoEs, especially those identified for designation, have programs in place to ensure safe environments for travellers. These include programs for monitoring food safety, water quality control, and the inspection of PoE facilities. There are trained personnel for the inspection of conveyances, and handheld infrared thermal scanners are used for entry screening of travellers. All three international airports have well positioned health desks. Import and export of various products including food, chemicals, animals and animal products, and human remains are monitored and subject to inspections.

Despite these established capacities all the designated PoEs have neither been assessed using the IHR Core Capacity Assessment Tool nor established the any public health emergency plans for responding to Public Health Events of International Concern (PHEICs) occurring at points of entry. There is need to strengthen coordination between all relevant stakeholders, develop a vector control program, and conduct periodic monitoring and evaluation of the ability to respond to public health events at the PoEs. Experts of the JEE mission visited Robert Gabriel Mugabe International Airport and the Nyamapande ground crossing at the border of Zimbabwe and Mozambique. These entry points were found to be under-staffed, and existing staff lacked training and updates on the IHR requirements. Basic equipment (e.g. water and food sampling kits) were not available, and there was no provision for yellow fever vaccinations. A lack of isolation facilities and health desk were observed at the Nyamapande border post.

## Recommendations for priority actions

- Conduct an IHR core capacity assessment for the designation of airports, ports, and ground-crossings using the WHO tool.
- Develop emergency preparedness and response plans with associated SOPs specific to the designated points of entry.
- Develop and implement a vector control programme at the PoEs in line with the WHO guidelines on Vector Surveillance and Control at Ports, Airports and Ground Crossings.
- Deploy adequately trained and qualified personnel to conduct screening and emergency response at points of entry.
- Periodically monitor and evaluate emergency response at PoEs through desk and after-action reviews, simulations, and audits.

## Indicators and scores

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

#### *Strengths/best practices*

- Infrared thermometers are available at all designated PoEs for the assessment of travellers. All international airports have well-positioned health desks to perform assessments. There is a register for monitoring of human remains at the PoEs.
- Programs for the inspection of facilities, food establishments, waste management, and rest rooms at the PoEs are functioning.
- There are trained personnel at all designated PoEs for the inspection of conveyances; and personal protective equipment (PPEs) and chlorine for disinfection of contaminated baggage, cargo, postal parcels, and conveyances are available.
- The Civil Aviation Authority of Zimbabwe (CAAZ) and the Port Health authorities both participate in the Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA) project.

#### *Areas that need strengthening/challenges*

- Ground crossings do not have a provision for Health Desks at immigration control for screening travellers.
- Vaccination services for yellow fever and a programme for vector control at PoEs is currently lacking.
- The critical shortage of staff at PoEs is further compounded by a lack of training and updated knowledge about public health measures under the IHR among the staff that are available.
- There is need to establish standby transport arrangements for transfer of ill travellers at the larger international airports.
- Availability of holding areas, for humans and animals suspected of harbouring infectious diseases and awaiting transfer to isolation facilities, is severely constrained.
- All PoEs conduct entry screening, but there is no exit screening of travellers.
- Relevant SoPs and port health operational guidelines to support implementation activities of IHR (2005) at the PoEs are lacking.



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

### *Strengths/best practices*

- Designated PoEs have access to a referral system linked to local government health facilities in the vicinity.
- Each PoE has multisectoral and security committees and meetings where health related matters are also discussed.
- There are SoPs available for formulation of chlorine solutions of varying concentration for disinfection and decontamination.

### *Areas that need strengthening/challenges*

- A specific public health emergency plan for PoEs, with defined roles and responsibilities of various stakeholders for responding to an emergency, needs to be developed.
- SoPs need to be developed for the assessment and referral of ill travellers and decontamination of affected conveyances.
- Ability to respond effectively to a public health emergency at PoEs needs to be evaluated.
- Capacities, in terms of staffing, equipment, and ambulance services at designated referral health facilities near PoEs need to be strengthened to manage ill travellers.

# 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.*

## Zimbabwe level of capabilities

Zimbabwe is party to several multilateral agreements relating to chemical events including the Basel, Rotterdam, Stockholm, Vienna, and Bamako Conventions, as well as, the International Labour Organization (ILO) Conventions 170 and 174. In addition, the country is a party to the Montreal Protocol on Ozone Depleting Substances. The country has also signed and is in the process of ratifying the Minamata Convention on Mercury. These conventions have been incorporated into domestic law through various enactments such as the Environmental Management Act, the Factories and Works Act, and the Agriculture Act - each with its own ancillary legislation.

Although no baseline public health assessments have been undertaken, chemical safety assessments have been undertaken through this enabling legislation for priority chemicals such as cyanide, a key raw material in gold extraction. These assessments include taking inventory of importation, use and disposal capacities, as well as, actual and projected demand. Although scores of localised chemical events occur during transportation, the major chemical safety events in the country have been largely restricted to poaching activities where cyanide is used to kill elephants and rhinos. Hundreds of animal deaths, attributed to the illegal use of chemicals, have been recorded. Such events have been promptly attended to by the Department of Veterinary Service, the Parks and Wildlife Authority, and the Environmental Management Agency. Affected sites such as salt licks were decontaminated to obviate any residual risk. Poor mining practices which include inappropriate storage of chemicals, lack of access control, and dam breaches known to result in the unintentional deaths of livestock.

## Recommendations for priority actions

- Conduct baseline public health assessments regarding chemical safety.
- Develop and operationalize a multisectoral national strategy and emergency response plan on chemical safety.
- Develop relevant guidelines and manual on chemical safety management in the spirit of the One Health approach.
- Strengthen capacity for chemical screening as points-of-entry.

## Indicators and scores

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

#### *Strengths/best practices*

- Presence of three laboratories (attached to the Veterinary Services, the Environmental Management Agency, and the Government Analyst) for testing and confirmation of chemical hazards.
- Presence of soil quality monitoring mechanisms in high risk areas such as the environs of chromium mines; inspection program for monitoring vehicle emissions.
- An environmental monitoring programme is in place which includes drinking water surveillance in most urban centres. An additional 385 monitoring points have been established which monitor 27 physicochemical parameters a monthly basis.
- Guidelines and procedures are in place for the monitoring of chemicals at six major points of entry.
- Availability of Emergency Response Guidelines which have been adapted from the US Department of Transportation.
- Presence of a functional system for monitoring consumer products such as foodstuff samples collected by the Ministry of Health and Local Authorities.

#### *Areas that need strengthening/challenges*

- Limited capacity in the established Poison Centers in terms of equipment, infrastructure, and human resources.
- Expansion of chemicals control at designated points of entry (PoEs), as only six out of seventeen PoEs are manned.
- Inadequate financial resources for the purchase of equipment (e.g. HAZCHEM units) and the calibration and maintenance of equipment.
- Need for decentralization of laboratory analytical services to provincial and district levels.
- Lack of ambient air quality monitoring system.
- Absence of relevant guidelines, manual, and SOPs for chemical safety in the chemical sector. Inadequate human resources at the grassroots trained in the management of chemical spills.

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

#### *Strengths/best practices*

- Presence of a comprehensive body of legislation covering the monitoring of chemical events, which is supported by a well-developed institutional framework. Key sectors covered include public and occupational health, and environmental protection.
- Presence of regular cross-sectoral Border Efficiency Management System (BEMS) meetings for continuous improvement.

#### *Areas that need strengthening/challenges*

- No baseline public health assessment, that considers morbidity, mortality, and biomarkers, has been undertaken for chemical safety events in the past five years.
- Absence of a national strategy on chemical safety that is based on the One Health approach.
- There is need for a national coordinating body and a sentinel chemical event monitoring system, in relation to 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.*

### Zimbabwe level of capabilities

The Radiation Protection Authority of Zimbabwe (RPAZ) is an independent and competent regulator that oversees all aspects of radiation control. The RPAZ was established through an Act of Parliament – the Radiation Protection Act [Chapter 15:15] of 2004 -- with a mission to protect people and the environment from the harmful effects of radiation. The Authority is headquartered in Harare with a southern Regional Office in Bulawayo.

Its functions include authorization and inspection of radiation practices and facilities, as well as, emergency preparedness and response to radiological emergencies. The operations are guided by a radiation safety strategic plan (2014-2018) which is up to date and being implemented. There is also a national committee on safety and security of radiation sources which provides a coordination mechanism for all stakeholders. Radiation protection regulations are currently being revised to incorporate provisions of international safety standards.

With support from International Atomic Energy Agency (IAEA), the country is currently implementing a Nuclear Security Detection Architecture Strategy targeting key ports of entry and strategic locations under the Integrated Nuclear Security Support Plan. The plan was developed to detect the movement of nuclear and radioactive materials in and out of the county. Portable detection equipment has been procured for installation by end of 2018 at major points of entry.

There is an on-going surveillance programme for the use of radiation technologies which encompasses emergency preparedness and response. This is being done in the framework of authorization for the use of radiation sources, compliance assurance inspections, as well as, enforcement against violations. All regulated facilities are obliged by regulatory requirements under Statutory Instrument 62 of 2011 to document and regularly review emergency preparedness and response measures commensurate with the radiation risks. These measures are subject to approval by the regulator as part of the review and assessment of an application for authorization to use radiation sources.

There is a draft Emergency Preparedness and Response (EPR) plan that provides for periodic drills and simulations. In 2016, a radiological emergency occurred in Harare involving the Ministry of Transport storage facilities and was handled successfully within three months, with technical assistance from the IAEA. This event provided an opportunity to strengthen the existing capacity, including better storage of radiation sources and radiation waste management. To this end, the country is building a radiation waste management facility in the outskirts of Harare City.

To strengthen coordination, RPAZ has signed MoUs with agencies like the Zimbabwe Revenue Authority and Zimbabwe Republic Police. There is collaboration between RPAZ and the Ministry of Health, but the engagement is still informal. There is no documented arrangement with health facilities or hospitals for referral, transport, and treatment of affected individuals. Thus, although some coordination mechanisms exist for interested parties, there is need for formal agreements between strategic stakeholders and the IHR focal point.

While RPAZ has developed significant capacity for radiation safety regulation, it suffers from several daunting challenges such as inadequate human resource capacity (only 30% of approved posts established) and a lack of in-country laboratory capacity for systematic analyses. There are also no dedicated emergency funds for RPAZ to mobilise quickly in case of emergencies and the Authority does not monitor consumer goods for potential radiation hazards.

Adoption and use of international guidelines for transport of radioactive material and waste management (IAEA and International Air Transport Association guidelines) has enabled RPAZ to conform to acceptable national and international standards.

## Recommendations for priority actions

- Finalize and fast-track approval of the national Epidemic Preparedness and Response Plan.
- Formalize arrangements between RPAZ and key stakeholders in radiation safety and IHR (2005), including memoranda of understanding with referral healthcare facilities, government agencies, and other relevant local stakeholders.
- Formalize and document arrangements, including memoranda of understanding and cooperation, between RPAZ and regional and international bodies/centres for sharing capacities e.g. laboratories for testing and staff training.
- Plan and conduct simulation exercises and drills on radiation safety.
- Implement monitoring of consumer goods for radiation safety.

## Indicators and scores

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

#### Strengths/best practices

- The country has the legal and regulatory framework for radiation safety in place, which encompasses EPR.
- A draft EPR plan has been developed and a mechanism for coordination among various interested parties has been established.
- The country is implementing a comprehensive nuclear security detection architecture strategy to manage the risk of illicit trafficking of radioactive materials.
- RPAZ has an on-going surveillance programme for the use of radiation technologies which also encompasses EPR arrangements.
- All regulated facilities are obliged by regulatory requirements to document and regularly review emergency preparedness and response measures commensurate with the radiation risks.
- The country has adopted the International Atomic Energy Agency (IAEA) guidelines for EPR.

### *Areas that need strengthening/challenges*

- Inadequate funding for the regulatory body to conduct training of early responders, to procure radiological monitoring equipment at critical sites like POEs and hiring of competent staff for the RPAZ to address the gap in required and available staff.
- There is no monitoring of radioactivity in foodstuffs at present thereby presenting a radiation risk to consumers.
- The country does not have laboratory capacity for testing radio-nuclide materials and there are no documented arrangements for the provision of such a service with facilities in neighboring countries.
- No emergency fund has been established to deal with radiation emergencies, nor do structures exist which can avail of such funds in the event of an emergency.

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

### *Strengths/best practices*

- The regulatory body, RPAZ has a current strategic plan (2015-2018) to guide its operations.
- National surveillance of radioactive sources is covered by the regulatory framework and is ongoing.
- The country has developed a Nuclear Security Detection Architecture which is aimed at building capacity to detect illicit flows of nuclear and radioactive materials through strategic ports.
- Portable detectors are available for distribution in all ports around the country.
- A coordination mechanism for all stakeholder exists through the National Committee on the Safety and Security of Radiation Sources.
- Memoranda of understanding exist between the regulatory body, Zimbabwe Revenue Authority and Zimbabwe Police, with existing support from the Department of Civil Protection .
- A radiation waste management facility is being established.

### *Areas that need strengthening/challenges*

- The National Emergency Prepared and Response Plan is yet to be finalized and approved for implementation.
- The country needs to build reference laboratory capacity and /or sign agreements with regional laboratories for use when needed.
- There is need for the training of medical specialists to deal with radiation emergencies and referral healthcare facilities need to be designated for radiation emergencies.
- Arrangements for financing emergency activities should be clearly spelt out to reduce the time lag before a response.
- Need for strengthening collaborations between the radiation safety authority and meteorology department, poisons centres, and the IHR focal point for effective EPR arrangements.

## Appendix 1: JEE background

### Mission place and dates

Harare, Zimbabwe; 19 – 23 February 2018.

### Mission team members:

- Athman Mwatondo, Kenya, Ministry of Health (team lead)
- Sofonias Getachew Asrat, Ethiopia, WHO Country Office (team co-lead)
- Maureen Bartee, USA, United States Centers for Disease Control and Prevention
- Hichem Bouzghaia, Tunisia, World Organization for Animal Health (OIE)
- Richard Garfield Richard, USA, United States Centers for Disease Control and Prevention
- Jerker Jonsson, Sweden, Public Health Agency of Sweden
- Remidius Kakulu, Tanzania, Ministry of Health
- Fredrick Kivaria, Kenya, Food and Agriculture Organization of the United Nations (FAO)
- Alice Ladu, South Sudan, WHO Country Office
- Abiodun Ogunniyi, Nigeria, Nigeria Centre for Disease Control
- Satyajit Sarkar, India, WHO Headquarters (consultant)
- Matthew Kol Tut, South Sudan, Ministry of Health
- Roland Wango, Senegal, WHO Regional Office for Africa
- Chadia Wannous, Sweden, Towards a Safer World Network

### Objective

To assess Zimbabwe's capacities and capabilities relevant to the 19 technical areas of the JEE tool for providing baseline data to support Zimbabwe'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

The IHR/JEE self-assessment for Zimbabwe was conducted in September - October 2017, and the self-assessment workbook was submitted to WHO at the end of October 2017. The external evaluation workshop planned for November 2017 was however rescheduled to February 2018 due to political instability in the country.

Roland Wango from the Dakar Hub of the WHO Emergencies Program, WHO Regional Office for Africa, visited Zimbabwe shortly prior the arrival of the evaluation team in February 2018, for discussions on the JEE mission. During the discussions, all national stakeholders were briefed on the IHR and JEEs. Building on the multiple teleconferences held between Roland Wango and the WHO Country Office prior to his arrival, the agenda and further details of the JEE mission were refined. Roland Wango also held detailed discussions with national focal points and the WHO Country Office to finalize logistical arrangements for the week of the mission. The national focal points, the WHO Regional Office for Africa, the WHO Country Office for Zimbabwe, and WHO Headquarters all collaborated closely to ensure the success of the evaluation mission.

## 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 Zimbabwe 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

### Zimbabwe lead representative:

Dr. Isaac Phiri, Deputy Director, Epidemiology and Disease Control, Ministry of Health and Child Care, Zimbabwe.

### Participating institutions:

- Ministry of Health and Child Care
  - » Department of Epidemiology and Disease Control
  - » Department of Environmental Health
  - » National Microbiology Reference Laboratory
  - » Government Analyst Laboratory
  - » Health Promotion Unit
  - » Food Safety
  - » Health Information
- Ministry of Environment, Water and Climate
  - » Environmental Management Agency
  - » Zimbabwe Parks and Wildlife Management Authority
- Ministry of Agriculture, Mechanization and Irrigation Development
  - » Department of Veterinary and Livestock Services
  - » Division of Veterinary Field Services
  - » Zimbabwe Central Veterinary Laboratory
- Ministry of Tourism and Hospitality Industry
  - » Zimbabwe Tourism Authority



- Ministry of Defence
  - » Zimbabwe Defence Services
  - » Zimbabwe Uniformed Services
- Zimbabwe National Action Committee on Water, Sanitation, and Hygiene (WASH)
  - » WASH National Coordination Unit – WASH
- Points of Entry
  - » Harare International Airport
  - » Nyamapande Border Control Post
- Ministry of Transport and Infrastructure Development
- Ministry of Primary and Secondary Education
- Civil Aviation Authority of Zimbabwe
- Radiation Protection Authority of Zimbabwe
- City Health Harare
- The President’s Department
- WHO Country Office, Zimbabwe

### Supporting documentation provided by host country

The documents listed below informed the Zimbabwe JEE process. Additionally, presentations on an overview of the health system in Zimbabwe and on each of the 19 technical areas were made by the Zimbabwe team during the evaluation.

### National legislation, policy and financing

- Public Health Act (Ch. 15:09), 1924
- Public Health Bill (under review), 2017
- National water policy
- Strategy to accelerate access to sanitation and hygiene
- The Zimbabwe national sanitation and hygiene policy
- Port Health regulations
- Food and Food Standards Act
- Dairy Act

### IHR coordination, communication and advocacy

- OIE Reports (World Animal Health Information System - WAHIS)
- IHR reports to the World Health Assembly.
- Guidelines and plans for yellow fever, typhoid fever, and cholera control (drafts)
- Highly Pathogenic Avian Influenza (HPAI H5N8) Response Report and Plan
- IHR National Focal Point Assessment Report, 2016
- Minutes of IACCH meetings

## Antimicrobial resistance

- Zimbabwe One Health Antimicrobial Resistance National Action Plan (2017-2021)
- Situation Analysis of Antimicrobial Use and Resistance in Humans and Animals in Zimbabwe (2017)

## Zoonotic diseases

- OIE PVS assessment report, 2009
- OIE PVS Gap Analysis report, 2014
- OIE PVS Veterinary Legislation Identification Mission Report, 2015
- Animal Health Act [Chapter 19:01].
- Zimbabwe Anthrax Control Guidelines in Humans and Animals, 2nd Edition - May 2012

## Food safety

- Food and Food Standards Act

## Biosafety and biosecurity

- OIE PVS assessment report, 2009
- OIE PVS Gap Analysis report, 2014
- Cartagena Protocol on Biosafety.
- Lab Register for dangerous pathogens housed in the country.
- Accident Book
- National Biotechnology Authority Act
- National Biotechnology Policy, 2005
- National Biosafety Framework
- Lab Safety Manual

## immunization

- Zimbabwe Comprehensive Immunization Program Review 2016
- Zimbabwe Expanded Programme on Immunization, comprehensive multi-year plan 2015-2019
- A proposal to respond to and control the ongoing measles outbreak in Zimbabwe by UNICEF and WHO (March 2010)
- Zimbabwe Demographic and Health Survey (ZDHS), 2015
- WHO immunization coverage data for Zimbabwe 2005 to 2016
- Report on Evaluation of Coverage Achieved during Zimbabwe Measles/Rubella and Vitamin A Catch-up Campaign Combined with Assessment of Routine Immunization, 2015

## National laboratory system

- N/A

## Real-time surveillance

- Integrated Disease Surveillance and Response (IDSR) Technical Guidelines, WHO, 2010
- Examples of the weekly report including case definitions for reporting and thresholds for alert and action
- Zimbabwe National Health Information System Strategy 2009-2014 (a new plan is in process now)
- Zimbabwe's E-Health Strategy 2012-2017 (draft)

## Reporting

- N/A

## Workforce development

- Human Resources for Health Policy
- Human Resources for Health Strategy 2017-2020

## Preparedness

- Zimbabwe Emergency Preparedness and Response (EPR) Plan, 2011
- Ebola Viral Disease Preparedness Plan
- Typhoid Control Guidelines
- Cholera Control Guidelines
- Zimbabwe INFORM risk index: <http://www.inform-index.org/Countries/Country-profiles/iso3/ZWE>
- Zimbabwe Civil Protection Act 1989 and Civil Protection Bill 2011
- Zimbabwe Hazardous Substances, Pesticides and other Toxic Substances Regulations (SI 12/2007)
- Zimbabwe Hazardous Waste Management Regulations (SI 10/2007)
- Zimbabwe Importation and Transit of Hazardous Substances and Waste (SI 77/2009)
- Zimbabwe Customs and Excise Act
- Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction <http://disarmament.un.org/treaties/t/bwc/text>
- Secretary-General's Mechanism for Investigation of Alleged Use of Chemical and Biological Weapons <https://www.un.org/disarmament/wmd/secretary-general-mechanism/>

## Emergency response operations

- Public Health Emergency Operational Guide, 2011.
- Minutes of meetings from EOC mobilizations for Cholera.

## Linking public health and security authorities

- Zimbabwe Civil Protection Act 1989 and Civil Protection Bill 2011
- Zimbabwe Emergency Preparedness and Response (EPR) Plan, 2011

## Medical countermeasures and personnel deployment

- N/A

## Risk communication

- Zimbabwe Communications Strategy for Ebola, 2015
- Bi-Weekly Media Reports
- Knowledge, Attitude, and Practice Survey Related to Typhoid Fever, UNICEF Zimbabwe

## Points of entry

- Harare Airport Emergency Preparedness and Response Plan
- Port Health Standard Operating Procedures
- Zimbabwe Emergency Preparedness and Response (EPR) Plan, 2011
- Zimbabwe disease-specific guidelines (EVD, H1N1, Cholera, Typhoid,)
- Public Health Act (15:09)
- Port Health Regulations SI 200 of 1996
- WHO guidelines on Vector Control at Ports, Airport and Ground Crossings, 2016
- IHR-Assessment Tool for Core Capacity Requirements at Designated Airports, Ports and Ground Crossings, 2009.

## Chemical events

- Environmental Management Act (SI 10/2007; SI 12/2007; SI 72/2009; SI 6/2007)
- Food and Food Standards Act
- Zimbabwe Revenue Authority Act
- Customs and Excise Act
- National Social Security Act
- Factories and Works Act
- Factories and Works Regulation (RGN263/1976; SI 286/1982)
- Fertilizers, Farm Feeds, and Remedies Act
- Pesticides control regulations

## Radiation emergencies

- Radiation Protection Act [ Chapter 15:15].
- Radiation Protection (Safety and Security of Sources) Regulations (SI 62/2011).
- Draft National Emergency and Preparedness Plan.
- Radiation Protection Authority of Zimbabwe Strategic Plan (2015-2018).
- <http://rpaz.co.zw/>



