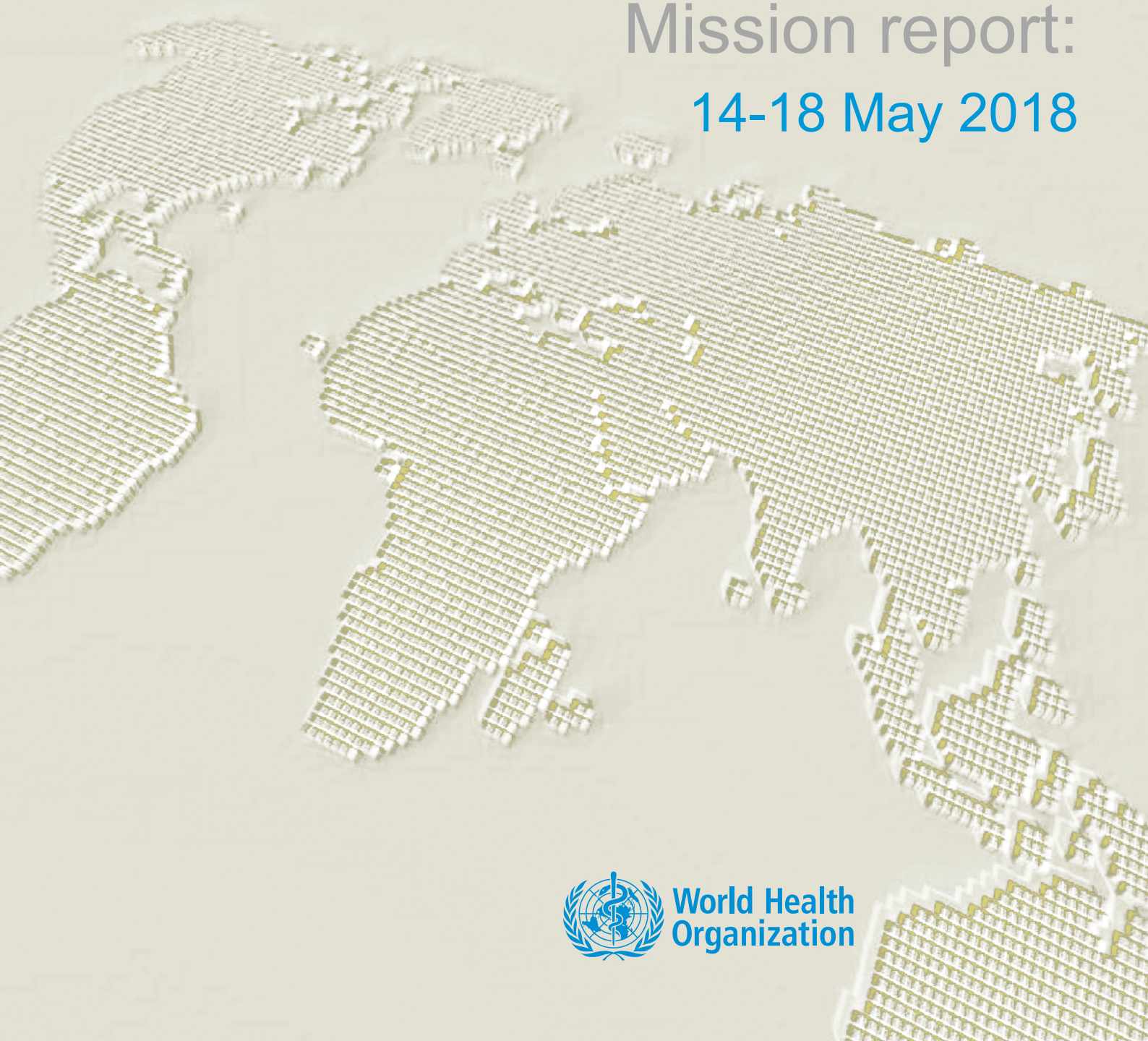
JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES

of the

REPUBLIC OF RWANDA

Mission report:

14-18 May 2018



World Health Organization

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Acronyms and abbreviations

AIDS	Acquired immune deficiency syndrome
AMR	Antimicrobial resistance
BCG	Bacillus Calmette–Guérin vaccine, for tuberculosis
BSL	Biosafety level
CBO	Community based organization
CBRNE	Chemical, radiological, biological, nuclear and explosives
CSO	Civil society organisation
DDMC	District disaster management committee
DGIE	Rwanda Directorate General of immigration and Emigration
DHIS-2	District Health Information System-2 platform
DPT	Diphtheria, pertussis and tetanus vaccine
DRC	Democratic Republic of Congo
EAC	East African Community
EID	Epidemic Diseases Division
eIDSR	Electronic integrated diseases surveillance and response system
EIS	Event Information System (IHR (2005) website)
EOC	Emergency operations centre
EPI	Expanded Programme on Immunization
EPR	Emergency preparedness and response
EQA	External quality assurance
ESR	Epidemic Surveillance and Response Division
FAO	The Food and Agriculture Organization of the United Nations
FE(L)TP	Field Epidemiology (and Laboratory)Training Programme
GHS	Globally Harmonized System for Classification and Labelling of Chemicals
GIS	Geospatial information systems
GOARN	Global Outbreak Alert and Response Network
HCAI	Health care associated infection
HIV	Human immunodeficiency virus
HPV	Human papillomavirus
HRH	Human resources for health
HSSP4	Rwanda Health System Strategic Plan 4
IAEA	International Atomic Energy Agency
ICC	Interagency Coordinating Committee
ICCM	Intergovernmental Committee on Chemicals Management
ICRP	International Committee for Radiological Protection
IDSR	Integrated disease surveillance and response
IPCS	WHO International Programme of Chemical Safety

IEC	Information, education and communication
IHR	International Health Regulations
IHR NFP	National IHR focal point
ILO	International Labour Organization
INFOSAN	International Network of Food Safety Authorities
IPC	Infection prevention and control
JEE	Joint external evaluation
LRC	Law Reform Commission
MCM	Medical counter measures
MCV	Meningococcal vaccine
MEA	Multilateral environmental agreements
mHealth	Mobile health
MIAGRI	Rwanda Ministry of Agriculture and Animal Resources
MIDIMAR	Rwanda Ministry of Disaster Preparedness and Refugee Affairs
MINALOC	Rwanda Ministry of Local Government
MINICOM	Rwanda Ministry of Trade and Industry
MINIRENA	Rwanda Ministry of Natural Resources
MMR	Measles, mumps and rubella vaccine
MOH	Rwanda Ministry of Health
MOU	Memorandum of understanding
MRSA	Multidrug resistant staphylococcus aureus
NAEB	National Agriculture and Export Board
NDMEC	National Disaster Management Executive Committee
NDMTC	National Disaster Management Technical Committee
NEOC	National emergency operations centre
NEPCCC	National Epidemic Prevention and Control Coordination Committee
NFP	National focal point
NICA	National Standards Inspectorate Competition and Consumer Protection Authority
NLSSP	National Laboratory Services Strategic Plan
NRL	National Reference Laboratory
OGS	Office of the Government Spokesperson
OHSC	One Health Steering Committee
OHSP	One Health Strategic Plan
OIE	World Organisation for Animal Health
OIE PVS	OIE Performance of Veterinary Services
OPCW	Organization for the Prohibition of Chemical Weapons
OPV	Oral poliovirus vaccine
PCR	Polymerase chain reaction
PHEIC	Public health emergency of international concern

PHEOC	Public health emergency operations centre
POC	Point of care
POE	Point of entry
PPE	Personal protective equipment
QMS	Quality management system
RAB	Rwanda Agriculture and Animal Resources Board
RALIS	Rwanda Agriculture and Livestock Inspection and Certification Services
RBC	Rwanda Biomedical Center
RDB	Rwanda Development Board
REMA	Rwanda Environmental Management Board
RHCC	Rwanda Health Communication Centre
RMH	Rwanda Military Hospital
RNP	Rwanda National Police
RNRA	Rwanda Natural Resources Authority
RRA	Rwanda Revenue Authority
RSB	Rwanda Standards Board
RURA	Rwanda Utility and Regulatory Agency
SAICM	Strategic Approach to International Chemicals Management
SARS	Severe acute respiratory syndrome
SDMC	Sector disaster management committee
SLMTA	Strengthening Laboratory Management Toward Accreditation
SOPs	Standard operating procedures
SPS	Sanitary and phytosanitary
TB	Tuberculosis
UR/Ladamet	University of Rwanda Laboratoire de Denrées Alimentaires, Médicaments, Eau et Toxines
VRAM	Vulnerability risk analysis and mapping
WAHIS	World Animal Health Information System
WASH	Water, sanitation and hygiene
WHO	World Health Organization

Executive summary

The JEE team would like to express its appreciation to the Republic of Rwanda for volunteering for a Joint External Evaluation: this shows a commitment, foresight and leadership from the highest levels of government that will be critical to success in building and maintaining Rwanda's core capacities under the International Health Regulations (IHR (2005)).

During the JEE mission, Rwanda's capacities in 19 technical areas were evaluated through a peer-to-peer, collaborative process that brought Rwandan subject matter experts together with members of the JEE team for a week of collaborative discussion and field visits. This process led to consensus on scores and priority actions in those 19 technical areas.

The assessors concluded that Rwanda's commitment to building and/or maintaining capacities to detect, assess, notify and respond to major public health events enjoys high-level political commitment and support. As a result, there have been notable achievements in several technical categories. Rwanda is able to demonstrate best practice in a number of areas such as immunisation and real time surveillance. Rwanda's systems for linking public health with security authorities, and some areas of risk communication, are all exemplary.

Three overarching recommendations emerged from the week. These are intended to address cross-cutting challenges affecting Rwanda's capacities across many of the different technical areas that are explored in greater depth in the JEE process. These overarching recommendations are outlined below. To a greater or lesser extent they call for refinement of existing procedures (as do many of the technical area recommendations).

It was noted that while Rwanda's One Health Steering Committee has greatly contributed to good collaboration between relevant sectors at national level, and human and animal health sectors demonstrate progress and good practice in working together, there are opportunities to improve sharing of information and increase coordination between sectors outside of emergency setting.

1. **The One Health Steering Committee should consider ways to decentralize the One Health framework, strengthen strategies for One Health communication and community engagement, and facilitate information sharing and collaboration between human, veterinarian, wildlife, and environmental professionals at all levels.**

Rwanda has a strong education system up to tertiary level, and produces a qualified and competent multisectoral, multidisciplinary workforce. Sharing of staff across ministries and other bodies is well managed in times of need, but there are no formal systems, protocols or agreements in place for sharing of personnel, and there is a consequent lack of accountability. There is a similar lack of formal structures for the international sharing of personnel and the best practices that Rwanda has diligently established.

2. **Formal agreements should be established between ministries to support the informal mechanisms that currently exist for sharing staff.**

In a small landlocked nation at risk of natural disasters, outbreaks and the effects of nearby population displacement, public health events of any kind can have severe consequences. In this context, frequent, thorough testing is needed to maintain and improve preparedness and response in all areas. While Rwanda has a strong programme of training that is well managed at national level, this does not always reach down to engage all sectors at all levels. The IHR monitoring and evaluation process advocates ongoing programmes of training, simulation exercises and after action reviews as effective ways to ensure continuous improvement of health security.

3. **Strengthen Rwanda's existing training for health security by implementing a structured initiative to expand, decentralize and review the current multisectoral comprehensive training and exercise programme. Exercises should be followed by after action reviews, and emergency preparedness and response plans should be audited against the outcomes of these reviews.**

In addition to these overarching recommendations, the JEE team developed 3-5 priority actions for each technical area of the JEE. These are listed in the table below.

The table below is the summary of the final scores for each technical area (details and priority actions are shown in the respective report chapters), as agreed by the national and external JEE teams. The principles of the scoring system are described in the JEE tool, available from:

http://www.who.int/ihr/publications/WHO_HSE_GCR_2016_2/en/

Rwanda Scores and Priority Actions

Technical area	Indicators	Indicator description	Score
1. National legislation, policy and financing	P.1.1	Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR (2005)	3
	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)	3
2. IHR coordination, communication and advocacy	P.2.1	A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR	3
3. Antimicrobial resistance	P.3.1	Antimicrobial resistance detection	1
	P.3.2	Surveillance of infections caused by antimicrobial-resistant pathogens	1
	P.3.3	Health care-associated infection (HCAI) prevention and control programmes	1
	P.3.4	Antimicrobial stewardship activities	1
4. Zoonotic diseases	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
5. Food safety	P.5.1	Mechanisms for multisectoral collaboration are established to ensure rapid response to food safety emergencies and outbreaks of foodborne diseases	3
6. Biosafety and biosecurity	P.6.1	Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	3
	P.6.2	Biosafety and biosecurity training and practices	3
7. Immunization	P.7.1	Vaccine coverage (measles) as part of national programme	5
	P.7.2	National vaccine access and delivery	5
8. National laboratory system	D.1.1	Laboratory testing for detection of priority diseases	4
	D.1.2	Specimen referral and transport system	3
	D.1.3	Effective modern point-of-care and laboratory-based diagnostics	3
	D.1.4	Laboratory quality system	4
9. Real-time surveillance	D.2.1	Indicator- and event-based surveillance systems	4
	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

Technical area	Indicators	Indicator description	Score
10. Reporting	**D.3.1**	System for efficient reporting to FAO, OIE and WHO	**3**
	D.3.2	Reporting network and protocols in country	**2**
11. Workforce development[1]	**D.4.1**	Human resources available to implement IHR core capacity requirements	**2**
	D.4.2	FETP1 or other applied epidemiology training programme in place	**3**
	D.4.3	Workforce strategy	**3**
12. Preparedness	**R.1.1**	National multi-hazard public health emergency preparedness and response plan is developed and implemented	**2**
	R.1.2	Priority public health risks and resources are mapped and utilized	**2**
13. Emergency response operations	**R.2.1**	Capacity to activate emergency operations	**2**
	R.2.2	EOC operating procedures and plans	**3**
	R.2.3	Emergency operations programme	**4**
	R.2.4	Case management procedures implemented for IHR relevant hazards	**2**
14. Linking public health and security authorities	**R.3.1**	Public health and security authorities (e.g. law enforcement, border control, customs) are linked during a suspect or confirmed biological event	**5**
15. Medical countermeasures and personnel deployment	**R.4.1**	System in place for sending and receiving medical countermeasures during a public health emergency	**2**
	R.4.2	System in place for sending and receiving health personnel during a public health emergency	**1**
16. Risk communication	**R.5.1**	Risk communication systems (plans, mechanisms, etc.)	**1**
	R.5.2	Internal and partner communication and coordination	**5**
	R.5.3	Public communication	**5**
	R.5.4	Communication engagement with affected communities	**4**
	R.5.5	Dynamic listening and rumour management	**4**
17. Points of entry	**PoE.1**	Routine capacities established at points of entry	**2**
	PoE.2	Effective public health response at points of entry	**1**
18. Chemical events	**CE.1**	Mechanisms established and functioning for detecting and responding to chemical events or emergencies	**3**
	CE.2	Enabling environment in place for management of chemical events	**3**
19. Radiation emergencies	**RE.1**	Mechanisms established and functioning for detecting and responding to radiological and nuclear emergencies	**3**
	RE.2	Enabling environment in place for management of radiation emergencies	**3**

1 FETP: Field epidemiology training programme

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 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 more effectively. Implementing legislation could serve to institutionalize and strengthen the role of IHR (2005) and operations within the State Party. It could also facilitate coordination among the different entities involved in their implementation. See detailed guidance on implementing IHR (2005) in national legislation at:

http://www.who.int/ihr/legal_issues/legislation/en/index.html.

In addition, it is important to have policies that identify national structures and responsibilities, and allocate adequate financial resources.

Target

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

States Parties to ensure the provision of adequate funding for IHR implementation, through the national budget or another mechanism.

Rwanda: level of capabilities

Rwanda has a large number of laws, policies and administrative arrangements that are, to a certain extent, compliant with the IHR, albeit old and fragmented. Rwanda has carried out assessments for both human and animal health, but has not fully implemented their recommendations.

Rwanda is a signatory to the International Health Regulations (IHR 2005) and is committed to strengthening its core capacities for prevention, prompt detection and confirmation, and timely and effective response.

The country boasts a number of policies, legislative instruments and administrative instruments that govern public health surveillance and response. These include the Health Sector Policy (2015); the Health Sector Strategic Plan (2018-2024); the One Health Strategic Plan; a Decentralization Policy, Ordonnance No. 74/21322 Juin 1954; the Law on Immigration and Emigration in Rwanda (No.4/2011); food and safety policy; and laws governing environmental health. The country is also a signatory to a number of cross-border agreements such as the East African Community (EAC) Protocol on Health, the EAC Act of One Border Post, and the Continental Free Trade Area.

In an endeavour to bring the laws of Rwanda into conformity with the provisions of the IHR (2005), the country has conducted an assessment of legal preparedness for IHR capacity, and an OIE Veterinary Legislation Identification Assessment. The primary focus of the assessment on human health was to document and analyse existing public health regulations based on the provisions of the Integrated Disease Surveillance (IDSR) guidelines, the IHR (2005) and/or other relevant international and regional instruments.

The findings of this assessment, amongst other things, were that the legal framework in this area is dispersed and fragmented. Different aspects of disaster management and communicable disease control were developed independently of each other, were covered by instruments of varying legal weights, and were not always cross-referenced or compatible with each other. The assessment also noted a narrow coverage of issues, lack of a definition of communicable disease, and the fact that the law is targeted primarily towards specific health issues (such as hygiene). Furthermore, the assessment noted that Rwanda's laws focused mainly on government institutional arrangements, with few references to civil society and/or international assistance, and that they emphasized response, with limited reference to prevention, early warning/surveillance and/or preparedness. In addition, a couple of laws and legislative instruments were outdated.

The animal health assessment team conducted detailed assessments of legislation related to four key areas of the veterinary domain: control of animal diseases; regulation of the veterinary profession and veterinary para-professions; regulation of veterinary medicines and biological; and safeguarding the food production chain. Amongst other recommendations, it was proposed that:

- Each law should include an official short title that could be used in order to identify the law easily and consistently in written and oral communication.
- All legislation in the veterinary domain should be reviewed with the aim of achieving consistency in definitions of key terms and consistent use of terminology between and within various pieces of legislation.
- Rather than moving the current Veterinary Public Health bill forward to Parliament, the Rwanda Agriculture and Animal Resources Board (RAB) should begin the drafting process anew according to the procedures now available through the Law Reform Commission (LRC).
- The current Animal Disease Control Law (Law N° 54/2008) should be replaced with a new law and accompanying Ministerial Orders.

Finally, while both reports provided recommendations to the Government of Rwanda, it is concerning that these recommendations—especially those concerning human health—have not been implemented.

Recommendations for priority actions

- Rwanda should implement the recommendations of two core capacity assessment reports: (1) assessment of legal preparedness for IHR capacity; and (2) 2014 OIE Veterinary Legislation Identification Assessment.
- Consolidate, review, and update decrees on hygiene and public sanitation, as well as the relevant conventions and agreements with neighboring countries.

Indicators and scores

P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR - Score 3

Strengths/best practices

- Rwanda's legislative framework addresses certain aspects of the IHR.
- An assessment of the legislative framework for both human and animal health has been carried out and adjustment needs have been identified.
- Relevant protocols and cross-border agreements are in place.
- Rwanda has a Law Reform Commission.

Areas that need strengthening, and challenges

- A number of laws and decrees are out of date.
- Fragmented laws require harmonization.
- Existing legal instruments need to be enforceable.
- International standards and the IHR (2005) need to be domesticated.

P.1.2 The state can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR (2005) - Score 3

Strengths/best practices

- Assessment of relevant laws to IHR has been conducted and adjustment needs have been identified.

Areas that need strengthening, and challenges

- Despite the existence of the law reform commission, there is no clear evidence of multi-sectoral collaboration of legal counsels and frameworks in the various Ministries of Government relevant to IHR to oversee the implementation of the harmonized legal requirements of IHR.

IHR coordination, communication and advocacy

Introduction

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

Target

The national IHR focal point to be accessible at all times to communicate with the WHO regional IHR contact points and with all relevant sectors and stakeholders in the country. States Parties to provide WHO with contact details of their national IHR focal points, update them continuously, and confirm them annually.

Rwanda: level of capabilities

Rwanda's national focal point for the IHR (2005) (IHR NFP) is officially the Rwanda Biomedical Centre; however, the supervisor of the Epidemic Surveillance and Response Division (ESR) is currently functioning as the sole focal person, and has not yet been trained on IHR issues.

The roles and responsibilities of the IHR NFP need to be communicated to all relevant stakeholders.

The overall responsibility for responding to and managing emergencies and disasters in Rwanda belongs to the National Disaster Management Executive Committee (NDMEC). The committee is composed of all line ministers, and is coordinated by the Prime Minister. National policies encourage government ministries to work together, as is evident in Rwanda's sectoral policies.

Collaboration between animal and human health is done through existing forums including the Social Cluster, the One Health Steering Committee, and various contingency plans. Rwanda is currently implementing a One Health National Strategic Plan 2014-2018, which was developed to—among other things—promote and strengthen national and regional interdisciplinary collaboration and partnerships in the context of One Health. This emphasizes collaboration between animal (including wildlife) and human sectors at all levels, and establishing national and regional frameworks for multidisciplinary collaboration between One Health stakeholders. This strategic plan is regularly updated based on the results of simulation exercises, which have included simulations of polio and Ebola outbreaks and natural (volcano) disasters.

The One Health Steering Committee assumes overall coordination and oversight of implementing the One Health approach. The Steering Committee comprises representatives from government institutions, bilateral and multilateral partners, civil society organizations (CSOs), the private sector, and community-based organizations (CBOs) involved in One Health. It is responsible for overall governance including establishing strategies, prioritizing the allocation of funding, and advocating and mobilizing resources for One Health. The Committee also serves as a platform for information sharing among stakeholders.

In 2006 the Rwanda Biomedical Centre was restructured, with the establishment of the Epidemic Diseases Division (EID), since renamed as the Epidemic Surveillance and Response Division (ESR), which also serves as the National Focal Point for the IHR (2005). The ESR provides secretarial support for the coordination of the Emergency Preparedness and Response (EPR) Committee. As part of communication, the ESR compiles and publishes weekly epidemiological reports.

An IHR Core Capacities Assessment in 2014 recognized the EPR Committee as an important framework for collaboration; however, evidence of the committee's functionality (such as meeting reports), was lacking.

Recommendations for priority actions

- In the context of One Health, develop standard operating procedures (SOPs) for information sharing between the health, agriculture and environment sectors, and any other relevant sectors, at all levels.

Indicators and scores

P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR - Score 3

Strengths/best practices

- There is high political commitment to the IHR (2005), as the coordination forum is the Prime Minister's office.
- Rwanda has various national initiatives fostering intersectoral collaboration in the short and the long term.
- A coordination mechanism is in place between relevant ministries.
- National policies and strategic documents are in place and provide a framework for intersectoral coordination, communication and advocacy.
- Rwanda has focal persons in post for the IHR (2005), the World Organisation for Animal Health (OIE), and the International Network of Food Safety Authorities (INFOSAN).
- Decentralised policies allow information sharing up and down public hierarchies.

Areas that need strengthening, and challenges

- There is a need to develop and implement SOPs and guidelines for coordination, communication and advocacy of IHR at all levels.
- There is a need to develop capacities and mechanisms for IHR coordination, and to communicate roles and responsibilities to relevant sectors.
- Implementation of IHR coordination activities should be documented according to monitoring frameworks for coordination such as those included in the EPR Plan and the One Health Strategic Plan.
- There is a need to develop IHR coordination capacities and mechanisms, and communicate roles and responsibilities to all relevant sectors.

Antimicrobial resistance

Introduction

Bacteria and other microbes evolve in response to their environment and inevitably develop mechanisms to resist being killed by antimicrobial agents. For many decades, this 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 the 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). This would include: (i) having a national comprehensive plan for each country to combat antimicrobial resistance; (ii) strengthening surveillance and laboratory capacity at national and international levels following agreed international standards developed in 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 with systems to preserve new antibiotics.

Rwanda: level of capabilities

The lack of a national plan for antimicrobial resistance (AMR) in Rwanda limits the country's capacity for detection, surveillance and control of AMR pathogens. An AMR strategic plan has been developed and is awaiting validation from the Ministry of Health and there are however, several best practices worth noting.

Referral and university teaching hospitals in Rwanda have internal plans for infection control and AMR, which are used for their accreditation. Health facilities in Rwanda have individual infection prevention and control (IPC) committees and standard operating procedures (SOPs). There are trained IPC professionals in these facilities.

Despite having no officially designated laboratories for detecting and reporting AMR, there are several laboratories that can conduct AMR detection (the referral and teaching hospitals, the National Reference Laboratory, and the Rubilizi Animal Laboratory). These laboratories send their results directly to the medical professionals who request them.

Despite not having any designated facility to conduct health care associated infection (HCAI) programmes, health facilities can rely on their individual IPC committees and SOPs, including water, sanitation and hygiene (WASH) programmes. There has been no evaluation of the effectiveness of infection control measures in these facilities.

A prescription is required for antibiotic use, but adherence to national guidelines has not been assessed and reinforced. Antibiotic use in the health facilities has also not been assessed.

Recommendations for priority actions

- Develop a National Plan for AMR, using the One Health approach.
- Designate labs for detection and reporting of AMR pathogens.
- Designate sentinel sites for surveillance of AMR.
- Designate centres for antimicrobial stewardship.

Indicators and scores

P.3.1 Antimicrobial resistance detection - Score 1

Strengths/best practices

- The University Teaching Hospital has an internal plan for infection control and AMR.
- Ten laboratories can conduct AMR detection: the National Reference Laboratory; Kigali Teaching Hospital Laboratory; Butare Teaching Hospital Laboratory; King Faisal Hospital Laboratory; Rwanda Military Hospital Laboratory; and a further five district hospital satellites laboratories in Byumba, Gihundwe, Gisenyi, Kibungo, and Ruhengeri.
- Rubilizi National Veterinary Laboratory is capable of detecting AMR pathogens in animals.
- Laboratory capacity exists to detect antibiotic residues in some animal products, such as dairy, honey and meat.

Areas that need strengthening, and challenges

- There is no national AMR action plan in place.

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

Strengths/best practices

- Potential sentinel sites exist for surveillance of infections caused by AMR pathogens.
- A national epidemic surveillance system is in place in both human and animal sectors.

Areas that need strengthening, and challenges

- There is no national plan for surveillance of infections caused by AMR pathogens.
- Priority AMR pathogens have not been chosen.
- There are no designated sentinel sites for surveillance of AMR pathogens.

P.3.3 Healthcare associated infection prevention and control programmes - Score 1

Strengths/best practices

- Healthcare facilities have individual IPC committees and SOPs.
- WASH programmes are in place in health facilities.
- Isolation units are in place in district and referral hospitals, and there is an isolation centre at Rwanda Military Hospital.

Areas that need strengthening, and challenges

- There is no national plan for HCAI prevention and control.
- There are no designated facilities conducting HCAI programmes.

P.3.4 Antimicrobial stewardship activities - Score 1

Strengths/best practices

- There is a draft AMR strategic plan awaiting validation from the Ministry of Health.
- Legislation is in place for inspection and use of medicines.
- SOPs are in place for prescribing antibiotics in teaching hospitals.
- A national pharmaceutical policy is in place.
- There is a ministerial order determining the organization of veterinary pharmacy practice.

Areas that need strengthening, and challenges

- There is no national plan for antimicrobial stewardship.
- There are no designated centres for antimicrobial stewardship.
- The draft AMR strategic plan needs to be finalized and validated.

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 their transmission. Approximately 75% of recently emerging infectious diseases affecting humans were of animal origin; and approximately 60% of all human pathogens are zoonotic.

Target

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

Rwanda: level of capabilities

Rwanda has experienced a number of recent zoonotic disease events. The country also borders nations, including the Democratic Republic of Congo (DRC) and Uganda, which are considered hotspots for emerging infectious diseases such as Ebola, Crimean Congo haemorrhagic fever, avian influenza and anthrax.

Rwanda's One Health Steering Committee (OHSC) was established in 2011. The OHSC leads the government's multisectoral, multidisciplinary approach to health challenges at the human-animal-environment interfaces, including emerging diseases. Leadership of the OHSC rotates between the authorities responsible for the core sectors, which include Rwanda Agriculture and Animal Resources Board/RAB (animal health), the Rwanda Biomedical Centre/RBC (human health) and the Rwanda Development Board/RDB (wildlife and ecosystem health). The committee is charged with responsibility for overall governance of One Health activities, including establishing strategies and priorities, prioritizing government funding, and mobilizing resources for One Health.

The OHSC has developed and validated a national list of priority zoonotic diseases that includes the following six diseases, in order of importance:

1. Viral haemorrhagic fevers (Ebola, yellow fever, Crimean Congo haemorrhagic fever and Marburg)
2. Highly pathogenic avian influenza
3. Rift Valley fever
4. Brucellosis
5. Human African trypanosomiasis (sleeping sickness)
6. Rabies

Rwanda has a zoonotic surveillance system in place for brucellosis, Rift Valley fever and trypanosomiasis.

Recommendations for priority actions

- Establish a joint operational surveillance system (including public health, animal health and the environment) for brucellosis, Rift Valley fever and trypanosomiasis.
- Decentralize the One Health framework so that human, veterinarian and wildlife professionals share information and take actions at the district/subnational level.
- Strengthen laboratory capabilities (equipment, consumables and training) for detection of priority zoonotic diseases such as rabies and avian influenza.
- Develop strategies for One Health communication and community awareness and engagement.

Indicators and scores

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

Strengths/best practices

- A One Health Steering Committee is in place to lead the government's multisectoral, multidisciplinary approach to emerging diseases.
- Zoonotic diseases have been prioritized.
- Zoonotic surveillance systems are in place for some zoonotic priority diseases in wildlife and domestic animals.

Areas that need strengthening, and challenges

- A joint operational surveillance system (including public health, animal health and the environment) is required for priority zoonotic diseases.
- The One Health framework should be decentralized.
- Laboratory diagnostic capabilities require strengthening.

P.4.2 Veterinary or animal health workforce - Score 3

Strengths/best practices

- A decentralized national animal health workforce is in place.
- Service trainings are done at all levels.

Areas that need strengthening, and challenges

- The capacity of the wildlife workforce requires strengthening.
- Continuous professional development should be offered to personnel dealing with zoonoses.

P.4.3 Mechanisms for responding to zoonoses and potential zoonoses are established and functional - Score 3

Strengths/best practices

- Rwanda has a One Health platform.
- Preparedness and response strategic plans are in place.
- Multisectoral national rapid response teams are ready to respond within 24 hours.
- Local government and communities are involved in responses.

Areas that need strengthening, and challenges

- Multisectoral district rapid response teams require strengthening.
- Rwanda needs a One Health communication strategy, supported by One Health community awareness and engagement programmes.

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 an outbreak's source and its subsequent containment are critical for control. Risk management capacity must be developed with regard to control throughout the food chain continuum. If epidemiological analysis identifies food as the source of an event, suitable risk management options that ensure the prevention of human cases (or further cases), based on risk assessments, must be put in place.

Target

States Parties to have surveillance and response capacity for risks or events related to food- and water-borne diseases, with effective communication and collaboration among the sectors responsible for food safety and safe water and sanitation.

Rwanda: level of capabilities

Foodborne illness is not uncommon in Rwanda, as is the case in many countries within the East African Region. For example, diarrhoeal diseases are among the top ten causes of morbidity and mortality, and are the third most common cause of death in children under five years.

In the last five years, 83% of diarrhoeal disease was related to food and waterborne diseases (typhoid fever, shigellosis, non-bloody diarrhoea, cholera and food poisoning, and other emerging food and waterborne diseases). Among 65 confirmed outbreaks of food and waterborne disease, 48% were food poisoning and 37% were cholera (Epidemic Surveillance and Response/ESR annual report 2015-2016).

The national food safety system in Rwanda is managed by various agencies under different ministries[2] and laws (Rwanda Food and Drugs Authority N° 61/2013 of 23/08/2013; Law Establishing the National Standards Inspectorate Competition and Consumer Protection Authority (NICA); the National Quality Policy; and the draft Food Safety Bill, 2016).

The primary objective of these various institutions and legislations is to promote public health, protect consumers against foodborne health hazards, and enhance economic development. Most of these institutions operate independently in fulfilling the functions for which they are established. This may create overlaps and duplication of mandates, inefficiencies in national food safety control, and inadequate use of resources.

Although there have been prior efforts to identify the required improvements in food safety, occasional reported outbreaks of foodborne illness have highlighted a food safety system that is not always effective in protecting the public health. The current system is responding only reactively to food safety problems, and gives insufficient attention to its preventive functions.

2 The Ministry of Health (MOH); the Ministry of Agriculture and Animal Resources (MINAGRI);the Ministry of Trade and Industry (MINICOM);the Ministry of Local Government (MINALOC);The Ministry of Natural Resources (MINIRENA);the RBC; The Rwanda Standards Board (RSB); RAB; the Rwanda Agriculture and Livestock Inspection and Certification Services (RALIS);the National Agriculture and Export Board (NAEB);the Rwanda Environmental Management Board (REMA);the Rwanda Natural Resources Authority (RNRA); the RDB; the Rwanda Revenue Authority (RRA); and the Rwanda National Police (RNP).

Food safety should be organised in a more coordinated and integrated way in order to deliver a high level of public health and consumer protection, in accordance with both local and international requirements. There is a need to establish and maintain a rational, integrated, farm-to-fork food safety system that harmonises inter-agency efforts and minimises inter-agency conflict and overlaps.

Recommendations for priority actions

- Establish a surveillance system to aid in understanding the epidemiology and the risks of foodborne diseases.
- Strengthen laboratory and field capacity for detection, diagnosis and confirmation of suspected foodborne outbreaks through:
  - Recruitment of trained staff
  - Re-training of existing staff
  - Procurement of the necessary lab equipment and consumables
  - Designation and accreditation of at least one national laboratory to handle foodborne diseases.
- Strengthen the necessary operational and coordination framework by:
  - Finalizing validation of the Food Safety Policy; the Food Safety Risk Communication Strategy; the Food Safety Law; and associated regulations
  - Hastening the development of the Food Safety Contingency Plan and SOPs/guidelines.

Indicators and scores

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

Strengths/best practices

- A national quality policy is in place.
- National focal points are in place for the IHR (2005), the OIE, and INFOSAN.
- The Rwanda Standards Board (RSB) and regulatory authority are in place.
- The Rwanda Food and Drugs Authority has been established.
- Rwanda has the capacity to conduct investigations of foodborne events.
- Food testing capacity is in place (at the RSB, Police Forensics and the University of Rwanda Ladamet[3]).
- Forensic microbiology capacity is in place.
- Inspection teams are in place, both centrally and in decentralized locations.
- The Rwanda Inspectorate and Competition and Consumer Protection Authority are in place.

Areas that need strengthening, and challenges

- There is a need to build capacity in food safety risk profiling.
- There is a need for increased laboratory capacity for detection.
- A food safety contingency plan and guidelines are required.

3 University of Rwanda Laboratoire de Denrées Alimentaires, Médicaments, Eau et Toxines

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 has raised concerns about the need to ensure proper biosafety and biosecurity to protect researchers and the community. Biosecurity is important in order to secure infectious agents against those who would deliberately misuse them to harm people, animals, plants or the environment.

Target

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

Rwanda: level of capabilities

Rwanda has had a National Biosafety Framework since 2005, and developed a National Policy on Development and SafeUse of Biotechnology in 2015. The policy consists of three major components: a national biosafety policy; national biosafety regulatory guidelines; and an institutional framework to operationalize the policy and regulatory instruments.

The institutional framework includes handling of notifications or authorizations; risk assessment and management; enforcement and monitoring; information management and public awareness; and education and participation.

Rwanda is a signatory of international conventions and protocols related to biosafety and biosecurity.

The country has initiated a plan to consolidate the location of dangerous pathogens and toxins into a minimal number of facilities. Rwanda has also started to use diagnostics that eliminate or minimise the need to culture dangerous pathogens—for example, using the GeneXpert test for analysing tuberculosis resistance, instead of culturing.

Biosafety and biosecurity training is conducted in all laboratories and all new staff are trained. Good practices have been established, with adequate SOPs and guidelines. A comprehensive training needs assessment has been conducted to identify training gaps. Training is provided by each institution, but a common curriculum is lacking. A train-the-trainers programme has not yet been established, but is under development.

Recommendations for priority actions

- Establish accreditation of the National Reference Laboratory, followed by district and veterinary satellite laboratories.
- Upgrade the biosafety/biosecurity referral laboratories to biosafety level 3.
- Enhance biosafety and biosecurity capacity (infrastructure, equipment, and human resources) at all laboratories as appropriate.
- Improve biological waste management in all facilities.

Indicators and scores

P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities - Score 3

Strengths/best practices

- A biosafety and biosecurity system is in place.
- A National Biosafety Policy (2015) and other guidelines address most relevant biosafety and biosecurity issues.
- An agrochemical law is in place for prohibited and restricted agrochemicals.
- Quarterly biosafety and biosecurity monitoring is carried out according to relevant SOPs.

Areas that need strengthening, and challenges

- Biosafety and biosecurity capacity building is required in lower level laboratories.
- Capacity needs to be built for the management of biological events.
- Key laboratories should be accredited.
- Enhanced capacity is required for biological waste management.

P.6.2 Biosafety and biosecurity training and practices - Score 3

Strengths/best practices

- Biosafety and biosecurity training is being conducted in all laboratories.
- Biosafety and biosecurity practices have relevant SOPs.
- A comprehensive training needs assessment has been conducted.

Areas that need strengthening, and challenges

- Public awareness of biosafety and biosecurity issues is low.
- There is no comprehensive training with a common curriculum.
- The train-the-trainer programme has not yet been implemented.

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 one of the most cost-effective ways of saving lives and preventing disease.

Target

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

Rwanda: level of capabilities

The Expanded Programme on Immunization (EPI) in Rwanda is comprised of three principal components: routine vaccination (fixed-location and outreach activities); supplemental immunization activities; and surveillance for EPI-targeted diseases. Immunization activities in Rwanda are coordinated at national level by the national Interagency Coordinating Committee (ICC), which includes all immunization technical partners and donors. The ICC is chaired by the Permanent Secretary of the Ministry of Health, and meets quarterly.

The scope of vaccines provided through the EPI increased from the six initial, traditional vaccines (BCG[4], DPT[5] , OPV[6], and MCV[7]) at the inception of the programme in 1980, to 12 vaccines by 2015, including new vaccines such as pentavalent vaccine, the second dose of measles and rubella vaccine, rotavirus vaccines, and human papillomavirus (HPV) vaccine.

EPI activities are fully integrated into routine health services as part of the minimum package of health interventions within each health facility. The National Immunization Programme is guided by a comprehensive multi-year plan (cMYP 2017-2021) that is aligned to the country's five-year Health Sector Strategic Plan 2018-2024. Although Rwanda currently procures 100% of traditional EPI vaccines, the plan clearly recognizes the need for the national government to strengthen progress towards vaccine independence by assuming increased responsibility for the procurement of new vaccines. It also provides guidance for consolidating progress towards the 2020 measles elimination target.

Administrative reporting, various population-based surveys and the WHO-UNICEF Estimates for National Immunization Coverage all confirm the immunization programme's ability to reach high proportions of the eligible population with all antigens. Over the past 10 years, national immunization coverage with the first dose of measles vaccine administered at nine months has been consistently maintained at over 95%. In addition, the proportion of children completely immunized has been maintained at over 90% over the last five years.

To accelerate and consolidate progress towards measles elimination, the country introduced a second dose of measles-rubella vaccine in 2014, and achieved national coverage of 90% within two years. No disparities in immunization coverage are observed across geographic areas, wealth quintiles or genders.

Supplementary immunization activities are organized when needed, based on immunity profiles and disease risk assessments. The latest mass immunization campaign against measles was conducted in the last quarter of 2017 and achieved high coverage (over 95%) at national and sub-national levels; this

4 Bacillus Calmette–Guérin vaccine, for tuberculosis
5 Diptheria, pertussis and tetanus—three vaccines in one
6 Oral poliovirus vaccine
7 Meningococcal vaccine

high coverage was confirmed by a post-campaign coverage survey conducted using the new WHO post-campaign coverage survey methodology.

Immunization data (vaccine delivery, cold chain functionality and vaccine stocks) are recorded by immunization providers in health facilities, using existing data collection tools. These data are checked, summarized and fed forward, on a weekly basis, to higher levels (district and national levels and WHO), using existing data systems (the electronic District Health Information System). Rwanda demonstrates the use of data at all levels to identify gaps and monitor immunization performance.

Cold chain and injection safety are high priorities for the programme; the last effective vaccine management assessment confirmed that all facilities providing immunization have a functioning cold chain. The upcoming implementation of the Gavi cold chain improvement plan will strengthen Rwanda's cold chain capacities and expand the solarisation of cold chain by replacing aging kerosene fridges with Solar Direct Drive equipment.

Recommendations for priority actions

- Continue sensitization activities to sustain community awareness of, and demand for, immunization.
- Sustain advocacy around national financial commitments and obligations for procurement of traditional and new vaccines.
- Expand immunization closer to communities by decentralizing vaccination services down to health posts.

Indicators and scores

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

Strengths/best practices

- High immunization coverage is maintained at all levels.
- Standard cold chain equipment is available in all immunization delivery facilities.
- Community workers are engaged in immunization programmes, linking communities with health facilities for vaccination services.
- Rwanda demonstrates leadership support and established good governance practices.
- There is a secured budget line for procurement of traditional vaccines, along with vaccine co-financing commitments.

Areas that need strengthening, and challenges

- Coverage with the second dose of measles-rubella vaccine should be improved.
- There is a need for continued advocacy for sustainable financing for traditional and new vaccines.

P.7.2 National vaccine access and delivery - Score 5

Strengths/best practices

- Rwanda demonstrates equitable delivery of immunization services across economic quintiles, geographic areas and genders.
- Standards and functional cold chain equipment are in place in all immunization service delivery facilities.
- Rwanda demonstrates good vaccine management, with no vaccine stock outs experienced.

Areas that need strengthening, and challenges

- There is a need to sustain delivery and community demand for immunization services, with a focus on groups at risk of being missed out (e.g. remote populations and the urban poor).

DETECT

National laboratory system

Introduction

Public health laboratories provide essential services including disease surveillance; disease and outbreak detection; emergency response; and environmental monitoring. State and local public health laboratories can serve as focal points for a national system, through their core functions for human, veterinary and food safety. These include disease prevention, control and surveillance; integrated data management; reference and specialized testing; provision of 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.

Rwanda: level of capabilities

The Rwandan National Laboratory Services Strategic Plan (NLSSP) 2015-19 is a key instrument in guiding the provision of accessible quality laboratory services by strengthening the national diagnostic network. Rwanda operates a five-tier national medical laboratory system that comprises 664 public and private laboratories: the National Reference Laboratory (NRL); seven referral hospital laboratories; four provincial hospital laboratories; 39 district hospital laboratories; and 478 public health care laboratories. There are also 136 private clinics. The laboratories are an integral part of health care provision and are usually attached to health facilities. The veterinary system has a National Reference Laboratory, four satellite laboratories and 80 local laboratories.

Rwanda has a laboratory-based disease surveillance system, and is capable of conducting nine of the core tests on the IHR immediately notifiable list, but lacks laboratory capacity for toxicology.

The NRL monitors stock and the supply chain, ensuring timely supplies to district level. There is a national transportation system for the nine priority diseases, with established guidelines.

Rwanda is proficient in classical diagnostic techniques including bacteriology, serology, and PCR in selected laboratories. The NRL and provincial and referral hospital laboratories monitor supervision to ensure the quality of services.

Personnel in these laboratories have been trained in good clinical laboratory practices and laboratory quality management towards international accreditation, but Rwanda is still waiting for an accreditation ranking. In the meantime, the laboratories are following International Standards Organization (ISO) standard 15189 for clinical laboratories.

Recommendations for priority actions

- Establish a national body in charge of certification and accreditation, and implement the accreditation of the National Reference Laboratory.
- Develop clinical toxicology laboratory capacity in terms of infrastructure, equipment and personnel.
- Strengthen human resources capacity in zoonotic disease laboratories.

- Assess how to facilitate and expedite sample transportation from local level to intermediate and central levels.
- Strengthen on-site mentorship and training in the laboratories network.

Indicators and scores

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

Strengths/best practices

- Rwanda has a network of laboratories carrying out core tests for disease pathogens under the IHR (2005).
- A laboratory supply chain mechanism is in place.
- Rwanda is part of a collaborative framework with other regional and international laboratories.

Areas that need strengthening, and challenges

- Rwanda should build infrastructure for biosafety level 3 pathogens.
- There is a need to expand capacity for maintenance of laboratory equipment.

D.1.2 Specimen referral and transport system - Score 3

Strengths/best practices

- A sample transportation network is in place from peripheral to central level.
- MOUs are in place between the NRL and regional and international laboratories.
- SOPs and equipment are in place for specimen packaging and transportation.

Areas that need strengthening, and challenges

- The time taken to ship samples from the point of care to intermediate and central levels should be decreased.

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

Strengths/best practices

- Some point of care test kits are available, and are being deployed to the field for real-time screening and diagnosis of specific diseases (e.g. tuberculosis, Malaria, HIV).
- Selected laboratories at point of care are fully equipped.

Areas that need strengthening, and challenges

- The supply chain for detection of priority diseases requires strengthening.
- The availability of special tests should be decentralized.
- National laboratory capacity for zoonotic diseases requires strengthening.

D.1.4 Laboratory quality system - Score 4

Strengths/best practices

- Licensing of laboratory premises is mandatory for all laboratories.
- Health laboratories conform with national and international quality standards.
- Rwanda has accredited laboratories for measles and TB.

Areas that need strengthening, and challenges

- Laboratory accreditation requires strengthening.

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 indicators, 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 subnational, national and international levels of authority regarding surveillance of events of public health significance; and improved country and regional capacity to analyse and link data from and between strengthened, real-time surveillance systems, incorporating interoperable, interconnected electronic reporting systems. 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 IHR and OIE standards.

Rwanda: level of capabilities

In 2010, surveillance for priority diseases in Rwanda shifted from a paper-based surveillance system established in 1998 to an electronic Integrated Diseases Surveillance and Response system (eIDSR). This movement built on the country's experience with the mobile health (mHealth) application TracNet, which collected real-time HIV/AIDS data using interactive voice response technology. The eIDSR was rolled out in 2011 in all public and accredited private health facilities, and is a more sustainable, comprehensive and robust system that is built upon the District Health Information System-2 (DHIS-2) platform. In 2017 the national averages for completeness and timeliness of reporting were 92% and 85% respectively.

eIDSR effectively monitors epidemic-prone diseases, alerts users about probable outbreaks in real time, and provides a platform for data analysis. Key features of Rwanda's eIDSR system include:

- Case-based reporting
- Weekly aggregated data reporting
- Integration of laboratory information
- Patient status reporting
- Case classification updates
- Real-time data analysis
- Outbreak alert when threshold is reached
- Outbreak monitoring (epi curves)
- Contact tracing
- Daily SMS/email of outbreak status updates to multiple users.

Five priority diseases are detected and reported using the syndromic system in eIDSR. Sentinel sites have been identified for active surveillance of selected conditions such as influenza, malaria, and Rift Valley fever.

The event-based surveillance system for human health has been fully incorporated into Rwanda's decentralized administrative structure. A community event-based surveillance system is being developed

that will be linked to the eIDSR or to SMSPro, which is being used by community health workers. Staff at all levels are trained to analyse surveillance data for public health actions.

Validation of surveillance data is done through data quality assurance activities, supervision, mentorship and daily data verification; in addition, the electronic systems have internal check rules to minimize data entry errors.

Surveillance feedback is provided through weekly epidemiological reports to all public health staff and national stakeholders via email. Surveillance bulletins are also available on the Rwanda Biomedical Centre web portal. The IHR focal person are available and responsible for reporting to regional and international stakeholders.

A list of notifiable conditions for both human and animal health has been classified following the One Health Approach; but separate electronic reporting systems exist for human, animal and wildlife health, and these systems operate independently from one another.

Recommendations for priority actions

- Establish community event-based surveillance based on the One Health approach.
- Develop an electronic surveillance system for domestic animal health.
- Strengthen human resource capacity building for disease surveillance in the One Health context.
- Maintain and upgrade the eIDSR system.

Indicators and scores

D.2.1 Indicator and event based surveillance systems - Score 4

Strengths/best practices

- Rwanda has a list of priority diseases under surveillance for both human and animal health.
- Mechanisms for information sharing on event-based surveillance are in place, with participation of local government, security authorities and communities.
- Event-based indicators are integrated into the district development strategic plan.
- The event-based surveillance system includes monitoring of social media, newspapers, SMS, and emails.

Areas that need strengthening, and challenges

- Community event-based surveillance systems need to be adapted to the One Health context.

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

Strengths/best practices

- Well-functioning electronic surveillance systems exist for human health (eIDSR) and for selected wildlife species (Impact).
- Rwanda has skilled staff at all levels for both human and animal health.

Areas that need strengthening, and challenges

- Electronic surveillance is required for domestic animal health, along with the related capacity building.
- Electronic surveillance systems should be interoperable and interconnected.
- Skilled personnel are required to ensure the maintenance and interoperability of electronic systems used in diseases surveillance.

- Financial support is needed to ensure the sustainability of surveillance systems.
- Sustainable retention strategies are required for human resources at all levels and across sectors.

D.2.3 Analysis of surveillance data - Score 4

Strengths/best practices

- The eIDSR generates automatic alerts and epidemic thresholds.
- Data analysis is part of the IDSR training package.
- There is regular review and analysis of surveillance data at all levels.
- Surveillance data quality audits are conducted quarterly.
- Weekly epidemiological reports are distributed to public health staff, stakeholders and the public.
- A web-based electronic system for laboratories that shares information on human health (LIS) is in place.

Areas that need strengthening, and challenges

- Existing surveillance systems should be linked.
- There is a need to build national capacity in data quality audit and data analysis at all levels.
- There is a need to build capacity in scientific writing, to help document best practices in surveillance.

D.2.4 Syndromic surveillance systems - Score 4

Strengths/best practices

- Five priority diseases are detected and reported syndromically through eIDSR.

Areas that need strengthening, and challenges

- Laboratory data should be linked to surveillance data.

Reporting

Introduction

Health threats at the human–animal–ecosystem interface have increased over the past decades, as pathogens 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 disease.

Target

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

Rwanda: level of capabilities

Rwanda is a Member State of both WHO and OIE, and has appointed a National Focal Person for the IHR (2005), OIE and INFOSAN. However, when it comes to the IHR (2005), the requirement is for a National Focal Point to consist of more than a single individual. Currently, only one person has access to the IHR event information system (EIS) site and learning materials.

The person functioning as the IHR NFP has not yet been trained in reporting public health emergencies of international concern (PHEICs). Consequently, there have been challenges in using tools and resources provided by WHO.

Rwanda has had to report several PHEICs in the last three years. These included Ebola in 2015, a mass population influx, and a volcanic eruption. Before reporting to WHO, information goes through the OHSC and the National Epidemic Prevention and Control Coordination Committee. The country has no legislation or policy for reporting PHEICs to WHO.

On the animal sector side, the OIE requirement is for one focal person, and reporting is done in an efficient and timely manner. A functional mechanism of communication exists between the IHR NFP, OIE delegates, and national focal points for the World Animal Health Information System (WAHIS).

Recommendations for priority actions

- Additional personnel should be designated and trained for the IHR NFP.
- Establish a policy to govern reporting, encompassing protocols, processes and regulations.

Indicators and scores

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

Strengths/best practices

- A centre for the IHR NFP has been identified according to the EPR Plan.
- Local systems are in place for reporting to the IHR NFP.
- A functional mechanism of communication exists between the IHR NFP, OIE delegates, and WAHIS national focal points.

Areas that need strengthening, and challenges

- More than one person should be assigned to the IHR NFP function, in order to facilitate the uninterrupted availability of the NFP.
- The current, lone IHR NFP staff member has not been trained.

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

Strengths/best practices

- Rwanda reports regularly to regional and international bodies.
- The OHSC and the National Epidemic Prevention and Control Coordination committee support the reporting system.

Areas that need strengthening, and challenges

- There is a lack of protocols and tools for reporting to WHO.

Workforce development

Introduction

Workforce development is important in order to develop a sustainable public health system over time. A highly qualified public health workforce should be developed and maintained with appropriate technical training, scientific skills and subject matter expertise.

Target

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

Rwanda: level of capabilities

Rwanda's Health System Strategic Plan IV (HSSP4) (2018-2024) addresses building health security as a priority. HSSP4 seeks to ensure that Rwanda is free of epidemic-prone diseases and public health threats, through building a sustainable, effective and efficient national surveillance, response and recovery system. One of the strategies to achieve this objective is to strengthen national workforce capacity to detect and respond to national public health threats. While this strategy lays the groundwork for an improved workforce to implement IHR core capacity requirements, the specific workforce needed is not described, allowing for the possibility that key workforce capacities may be left out of an implementation plan.

Rwanda's Human Resources for Health (HRH) Strategy (2011-2016) and Policy (January 2015) include a description of training for clinicians, nurses, epidemiologists, and field epidemiologists, but do not include laboratory personnel or the animal health workforce. The strategy states that "the MOH and the Rwandan professional councils are in the process of establishing career progression structures that will define paths of career growth for all cadres of professionals"; but career paths for non-clinical disciplines were not included in these career progression structures.

The animal health workforce is described in the RAB human resources training plan, but without any mention of their role under the IHR (2005).

The Human Resources for Health strategy is in the process of being updated and brought into line with the HSSP4. It is recommended that this updated strategy should include the career progression of public health professions (epidemiologists, laboratory personnel) as well as clinicians.

Rwanda has 15 universities and schools that train human and animal health doctors, nurses, public health professionals, environmental health officers, pharmacists, and laboratory technicians. The country currently counts 1,089 registered medical doctors; 9,448 registered nurses; 1,352 laboratory technicians; 206 environmental health officers; 369 pharmacists; 98 physiotherapists; and 230 anaesthesiologists. In the animal health sector, there are 488 veterinary doctors and technicians and 1,506 community animal health workers. These workers are distributed systematically through different tiers of the decentralized health system.

Rwanda also has an advanced field epidemiology laboratory training programme (FELTP) that is run by the University of Rwanda School of Public Health, and which results in a master's degree in field epidemiology. This course began in 2010. It is available to both epidemiologists and laboratory personnel, and has graduated 34 field epidemiologists at time of writing, but has only included four veterinarians to date. It

is financed primarily through external donor partners, but this support is decreasing, so the programme is vulnerable to closure. Options should be explored to increase its financial sustainability through additional funding from both donors and the government.

The multidisciplinary workforce collaborates through the OHSC and the National Rapid Response Team at national level, and through district rapid response teams at the district level. The animal sector is not regularly involved at district level, though, as the One Health approach has not been fully decentralized. There is a One Health Strategic Plan (OHSP) (2014-2018), but this does not explicitly describe the workforce needed to implement it. The OHSP should be referenced as human resources strategies and plans are further developed or updated, in order to ensure the inclusion in those plans of the workforce needed to implement it.

Recommendations for priority actions

- Determine the requirement for epidemiologists and other personnel needed to implement IHR core capacities at district level, and include it in the HRH strategic plan or the HSSP4 implementation plan.
- Ensure that the HRH plan is updated and in alignment with HSSP4.
- Identify opportunities to increase the financial sustainability of Rwanda's FETP programme (including through new donor partners and increased collaboration with neighbouring countries).
- Develop a robust frontline FETP programme in order to train a multidisciplinary workforce in each district.
- Increase the number of Masters students in FETP, and take action to increase the participation of veterinarians in the cohorts.

Indicators and scores

D.4.1 Human resources are available to implement IHR core capacity requirements - Score 2

Strengths/best practices

- A multisectoral platform is in place for human and animal health professionals (One Health).
- Different training institutions, public and private, are available throughout the country, and are able to produce skilled and competent health personnel in quantity.
- Multi-disciplinary committees and rapid response teams are in place at national and district level.

Areas that need strengthening, and challenges

- There are insufficient field epidemiologists and biostatisticians at intermediate (district) level.
- District level multisectoral rapid response teams require strengthening.
- There is high staff turnover despite the existence of staff retention programmes. This should be addressed.

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

Strengths/best practices

- A field epidemiology and laboratory training programme (FELTP) is available.
- In-service training programmes are available for district rapid response teams (10-day FELTP short courses).
- Pre-service trainings on infectious disease management in the context of One Health are available to graduates in the human and animal health sectors.

Areas that need strengthening, and challenges

- The number of FETP graduates should be increased, and measures should be taken to ensure they are included in the workforce strategy.
- A more sustainable approach for financing FETP should be developed and implemented.
- More veterinarians should be enrolled in the FETP.

D.4.3 Workforce strategy - Score 3

Strengths/best practices

- There is both a policy and a strategic plan for human resources for health.
- A One Health platform is in place at national level.
- A variety of workforce retention strategies are in place.

Areas that need strengthening, and challenges

- The human resources for health strategy has not been updated since 2016 and should be reviewed.
- Animal health requires a workforce strategy.

RESPOND

Preparedness

Introduction

The effective implementation of the IHR (2005) requires multisectoral/multidisciplinary approaches through national partnerships for effective alert and response systems. It requires coordination of nationwide resources, including the sustainable functioning of a national IHR focal point that is accessible at all times to communicate with WHO IHR regional contact points and all relevant sectors and stakeholders in the country. (The IHR focal point is a national centre for IHR (2005) communications, and a key requisite for implementing the IHR (2005)). States Parties should provide WHO with contact details for their national IHR focal points, update them continuously, and confirm them annually.

Target

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

Rwanda: level of capabilities

The National Disaster Risk Management Plan is the guiding document that enables the Rwandan government to address disaster risk management. The plan is used by all government and non-government sectors (e.g., health, transport, agriculture, public works, etc.) as the basis for developing and maintaining their own sub-plans, systems and arrangements. It is aligned with development goals and policies including but not limited to the Sustainable Development Goals, Vision 2020, the National Decentralization Policy, and the Seven Year Government Programme. This plan incorporates IHR-related hazards through the development of contingency plans, including the National Contingency Plan for Industrial and Technological Disasters.

The National Disaster Management Technical Committee (NDMTC), under the Ministry of Disaster Management and Refugee Affairs (MIDIMAR), is tasked with overall responsibility for coordinating government efforts to prepare for and respond to disasters, including disease epidemics. This committee reports to the National Disaster Management Executive Committee (NDMEC), which is the country's highest decision-making body on matters of disaster preparedness. The NDMEC is composed of all line ministers, and is coordinated by the Prime Minister.

MIDIMAR is the operational coordinator for all disaster risk management issues at the national level, and is responsible for all day-to-day disaster management activities as stipulated in policy guidelines. At district level, district disaster management committees (DDMC) are in charge of coordinating emergency response in their respective districts, under the direction of the Rwanda National Disaster Operation Centre. Sector disaster management committees (SDMCs) have the same responsibility at sector level.

The EPR Plan outlines the structures and processes required to maintain a high level of preparedness for public health events, including disease outbreaks, as well as the coordination mechanisms for PHEIC containment at various levels of health care and governance. Within the Ministry of Health, epidemic preparedness and response activities are coordinated by the EPR Committee. The EPR Committee is chaired

by the Minister of Health, the Permanent Secretary or another individual designated by the minister, and is responsible for reviewing policies and guidelines regarding public health emergencies, coordination and mobilization of human and other resources during outbreaks, and linking the health sector to other sectors and stakeholders relevant to outbreak response and mitigation. The EPR Committee is legally established (in line with the Disaster Management Policy) and has clear terms of reference to handle preparedness and response within the health sector.

Neither the National Disaster Risk Management Plan nor the EPR incorporates points of entry. It is recommended that the next revision of the EPR include points of entry, and that emergency response plans at border posts include contingencies for epidemic diseases.

A chemical, biological, radiological, nuclear and explosives (CBRNE) plan has been drafted, but is not yet finalized. A CBRNE risk assessment should be completed in order to determine the level of risk from these threats and the need for stockpiles to address them if they occur.

Risk mapping to identify potential urgent public health events has been conducted for yellow fever, polio, cholera, meningitis, and several natural disasters. Some resources have been mapped, but there is a need to conduct comprehensive mapping that includes logistics, experts, finances, and medical countermeasures.

Recommendations for priority actions

- Update the EPR plan to include points of entry, and finalize the CBRNE preparedness and response plan.
- Finalize district preparedness and response plans.
- Conduct resource mapping for responses to public health threats.
- Conduct vulnerability risk analysis and mapping (VRAM) in the health sector.
- Increase human resources and logistics capacities to respond to public health threats, including other hazards under the IHR (2005).

Indicators and scores

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

Strengths/best practices

- Rwanda has an EPR plan that includes multisectoral response capacity.
- Procurement and distribution systems for supplies are in place.
- Plans have been tested through simulation and tabletop exercises.

Areas that need strengthening, and challenges

- There is currently no district-level response plan—though these plans were in development at the time this report was written.
- Some contingency plans are not updated.
- The national EPR plan does not incorporate points of entry.

R.1.2 Priority public health risks and resources are mapped and utilized - Score 2

Strengths/best practices

- Risks have been mapped for several events (for the period 2014-2018).
- The government response is coordinated by MIDIMAR and includes multisectoral expertise.

Areas that need strengthening, and challenges

- There is a need to conduct a vulnerability risk assessment. This is scheduled for July 2018.
- There is a need for resource mapping, including logistics, finance, experts, etc.
- Rwanda has no stockpiles for responses to other IHR-related hazards, and supplies are particularly lacking for CBRNE hazards.

Emergency response operations

Introduction

A public health emergency operations centre (PHEOC) 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 responses to emergencies, or during emergency exercises. They also provide other essential functions to support decision-making and implementation, coordination and collaboration.

Target

Country has capacity for: a public health emergency operations centre functioning according to minimum common standards and maintaining trained, functioning, multisectoral rapid response teams; real-time biosurveillance laboratory networks; information systems; and trained PHEOC staff capable of activating a coordinated emergency response within 120 minutes of the identification of a public health emergency.

Rwanda: level of capabilities

Overall responsibility for responding to disasters in Rwanda belongs to MIDIMAR, and is exercised through the National Disaster Management Executive Committee (NDMEC), which is composed of all line ministers and coordinated by the Prime Minister. Within the Ministry of Health, EPR activities are coordinated by the National Epidemic Prevention and Control Coordination Committee (NEPCCC).

The NEPCCC works as an incident command and control centre responsible for coordinating and mobilizing resources during outbreaks and other public health emergencies, and linking the health sector to other sectors and stakeholders relevant to outbreak response. At district level, emergency response activities are managed by both the health sector (through district rapid response teams) and local government (through the Joint Operating Centre, which includes security bodies operating at local level).

The country does not have a physical facility serving as a public health emergency operations centre (PHEOC), but day-to-day PHEOC functions are assumed by the ESR. The ESR gathers real-time information on public health events, diseases and conditions using a robust indicator and event based surveillance system (which covers, among other things, rumour surveillance, media review, and outputs of other existing surveillance systems).

Recommendations for priority actions

- Establish a public health emergency operations centre (PHEOC) with appropriate equipment and dedicated staff.
- Adapt the WHO PHEOC manual, procedures and plan.
- Conduct multisectoral simulation exercises to test the functionality of the PHEOC and the associated Incident Management System (IMS).
- Update case management guidelines for priority diseases and develop case management guidelines for other relevant hazards under the IHR (2005), including chemical events and radiological emergencies.

Indicators and scores

R.2.1 Capacity to activate emergency operations - Score 2

Strengths/best practices

- Multidisciplinary mechanisms to respond to emergencies are in place at central and decentralized levels.
- Mechanisms are in place for sharing information and feeding communication from the centre back down to community level.
- Mechanisms and a platform to activate emergency operations are operational 24/7.

Areas that need strengthening, and challenges

- Rwanda has no physical facility to serve as a PHEOC.

R.2.2 Emergency operations centre operating procedures and plans - Score 3

Strengths/best practices

- Strategic plans are in place to guide responses to potential public health emergencies.
- A multisectoral mechanism is in place to respond to any public health emergency, and includes the NEPCCC, rapid response teams, and the national and district disaster management committees.

Areas that need strengthening, and challenges

- No specific procedures and plans are in place for the PHEOC.
- Existing procedures and plans need to be updated.
- In some technical areas Rwanda has no expert staff and has carried out no comprehensive training (for example, responses to chemical and radio-nuclear events).

R.2.3 Emergency operations programme - Score 4

Strengths/best practices

- A range of simulation exercises has been conducted—for example, for an Ebola outbreak, mass influxes of people, or an air crash. Simulation exercises for the latter are conducted biannually.
- A daily media review is carried out, and real time information is collected through existing hotlines.

Areas that need strengthening, and challenges

- There are no regular simulation exercises to test the functionality and response capacity of the PHEOC.
- There is no simulation exercise plan for health emergencies.

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

Strengths/best practices

- Case management guidelines are available for specific epidemic-prone diseases including cholera, shigellosis, typhoid fever, meningitis, viral haemorrhagic fevers, etc.
- Rwanda has an effective referral and emergency transportation mechanism.
- Some diseases can be managed at community level by community health workers.

Areas that need strengthening, and challenges

- There are no case management guidelines for some hazards under the IHR (2005)—for example, CBRNE events.
- There is no local expertise in some technical areas—again, including CBRNE issues.

Linking public health and security authorities

Introduction

Public health emergencies pose special challenges for security authorities, whether the threat is manmade (e.g. anthrax terrorist attacks) or naturally occurring (e.g. flu pandemics). In a public health emergency, security authorities must coordinate their responses quickly with public health and medical officials.

Target

In the case of a biological event of suspected or confirmed deliberate origin, a country should be able to conduct a rapid, multisectoral response, with the capacity to link public health and law enforcement, and to provide and/or request effective and timely international assistance (for example, to investigate instances of alleged use).

Rwanda: level of capabilities

Rwanda demonstrates a high level of collaboration between public health and security authorities in responding to emergencies. These collaborations are covered in the National Contingency Matrix Plan and the Emergency Preparedness and Response Plan, with police and defence included in rapid response teams at national and district levels. In addition, the NEPCCC contains representatives from defence forces and the police.

Other plans that include agreements between the public health and security sectors include the Chemical, Biological, Radiological, and Nuclear Action Plan and the National Contingency Plan for Animal and Plant Diseases. There are few existing MOUs between agencies, but multisectoral collaboration, including with the security sector, is part of the normal working environment in Rwanda. While informal collaborations are effective, there is a recognized need to formalize the relationships that underpin them, in order to achieve better accountability for resources, and to ensure that each sector is aware of its specific roles and responsibilities during a crisis.

The government has tested these collaborations through multiple simulation and tabletop exercises, and they seem to function well. Exercises to date have included a full scale Ebola simulation exercise, a volcanic eruption simulation exercise, and disaster management and counterterrorism tabletop exercises with participation from health and security personnel. During a recent outbreak of cholera, public health and law enforcement agencies responded jointly to the event, further demonstrating effective collaboration.

There is ample evidence highlighting the existence of these collaborations, but no evaluations have been conducted to determine their effectiveness. In order to sustain capacity at its current high level, it is recommended that Rwanda conduct after action reviews of emergency events, with the aim of measuring the effectiveness of the multisectoral response.

Information is shared regularly between sectors, through the distribution of a weekly epidemiological report. During health emergencies, representatives of the security sector receive daily situation reports as members of the NEPCCC. No formal joint training programme currently exists, but the Ministry of Health did train staff from multiple sectors during the Ebola outbreak in West Africa in 2013-16.

Within the public health agencies, there seems to be an understanding of the importance of collaboration between public health and security authorities, but there is a need to enhance the security sector's understanding of its role in health emergencies. It is recommended that information about the importance of this collaboration, as well as the unique role the security sector plays in health emergencies, is included in pre-service training throughout the security sector.

Recommendations for priority actions

- Sustain current levels of capacity through a regular schedule of joint training and exercises.
- Conduct after action reviews of emergency events with the aim of improving multi-sector response.
- Conduct pre-service training for the security sector on its role in health emergencies.

Indicators and scores

R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) are linked during a suspect or confirmed biological event - Score 5

Strengths/best practices

- National structured coordination mechanisms provide roles and responsibilities for all government entities during disasters and other emergencies.
- Simulation and tabletop exercises have taken place and included personnel from the health and security sectors.
- There is regular information sharing between sectors.

Areas that need strengthening, and challenges

- Evaluations of joint responses are needed for continuous quality improvement.
- Security sector personnel are not always aware of their role in health emergencies, and require enhanced training.

Medical countermeasures and personnel deployment

Introduction

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

Target

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

Rwanda: level of capabilities

Rwanda'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 these formal plans are absent, Rwanda does have experience of 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, but there are existing contracts with local and international suppliers, including UNICEF (the UN Children's Fund), that can be used for procurement of countermeasures during emergencies. Domestically, there are dedicated facilities and staff for tracking and distribution of both human and animal countermeasures, and there are stockpiles of medical countermeasures available for national use.

There are no regional agreements for procuring, sharing and distributing countermeasures during public health emergencies. However, Rwanda is part of the East African Community and the African Union, both of which are developing agreements to be used within the region.

The country does not have a formal plan for sending and receiving health personnel during a public health emergency, but there is a common understanding internally that health personnel can be moved between different levels of government, and requested from local and international organizations, when there is a need to respond to emergencies. Rwanda has received international medical personnel in the past, 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 Rwanda were deployed to West Africa to assist with the 2013-16 Ebola outbreak.

Recommendations for priority actions

- Develop plans for sending and receiving medical countermeasures and medical personnel, in line with any such plans being developed by the East African Community and/or the African Union.
- Join regional and/or international partnerships for procurement, sharing and distribution of medical countermeasures and sharing of personnel during emergencies (e.g. GOARN).
- Include sending and receiving personnel and medical countermeasures in planned simulations and tabletop exercises.

Indicators and scores

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

Strengths/best practices

- There is strong political will and leadership in this area.
- Existing contracts are in place with local and international suppliers, including UNICEF, that can be used to procure countermeasures during emergencies.
- Rwanda has dedicated facilities and staff for tracking and distribution of both human and animal countermeasures.

Areas that need strengthening, and challenges

- Rwanda has no formal plans and procedures for sending and receiving medical countermeasures during a public health emergency.
- The East African Community and African Union draft plans for regional partnerships for procurement, sharing and distribution of medical countermeasures need to be finalized.

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

Strengths/best practices

- There is strong political will and leadership in this area.
- Committed and resilient medical staff are in place in most public and private institutions, and are prepared for public health emergencies.
- Rapid response teams are available at all levels as a first line of response.

Areas that need strengthening, and challenges

- There are limited procedures in place for sending and receiving medical personnel during a public health emergency, but no formal plans.
- There are no standing agreements with international partners to send or receive surge personnel during public health emergencies.

Risk communication

Introduction

Risk communication should be a multilevel, multifaceted process that helps 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 disseminating information to the public about health risks and events, such as disease outbreaks. For communication about risk to be effective, the social, religious, cultural, political and economic effects of the event should be taken into account—including the voice of the affected population.

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

Target

States Parties should have risk communication capacity that includes multilevel, multifaceted real-time exchange of information, advice and opinion between experts and officials and people who face a threat or hazard to their survival, health or economic or social wellbeing. This information should enable them to take informed decisions to mitigate the effects of the threat or hazard, and to take protective and preventive action). It should consist of a mix of communication and engagement strategies such as media and social media communication, mass awareness campaigns, health promotion, social mobilization, stakeholder engagement, and community engagement.

Rwanda: level of capabilities

The Rwanda Health Communication Centre (RHCC) is in charge of communicating with the public around health issues, both routinely and during an emergency. They are responsible for health promotion, routine communication, and risk communication. The Head of the RHCC is the official spokesperson for the Ministry of Health, with background training in communication. The NEPCCC—which is multisectoral and includes communication personnel—discusses the handling of outbreaks and supports the generation of information to be disseminated. All announcements and press briefings are reviewed and approved by the head of the RHCC.

Rwanda has several communication strategic plans for public health emergencies of types that have been handled recently, and risk communication capacity has been tested in these real events; but the country does not yet have a generic risk communication plan.

During emergencies, multiple media channels are used to communicate with the community in several relevant languages. Media houses have direct contact with the RHCC team. There is a toll-free emergency hotline that provides a means for communities to address their concerns, and the operators of this hotline receive daily updates from the RHCC during emergency situations. There is collaboration between the RHCC national team and district/village health management teams. Religious leaders and community leaders are also involved in disseminating information.

The RHCC has a system in place for daily media review and monitoring, and rumours are flagged and shared with all relevant senior officials.

Recommendations for priority actions

- Develop a multi-hazard risk communication plan, and test it annually.
- Involve other identified stakeholders (MIDIMAR, Rwanda Red Cross, etc.) in the existing technical working group.
- Develop and implement monitoring and evaluation of dynamic listening and rumour management.
- Provide regular training for the risk communication team.

Indicators and scores

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

Strengths/best practices

- Rwanda has a national communication platform that includes all government institutions, and which is overseen by the Office of the Government Spokesperson (OGS).
- The RHCC is the main entity in charge of all activities related to communication and health promotion, providing a single focal point for communication.
- The NEPCCC is in place, is multisectoral, and includes communications personnel.
- Permanent staff are in charge of reporting public health emergencies at central level.
- Local government and security bodies are fully involved in risk communication management.
- Volunteers are engaged in different risk communication activities.

Areas that need strengthening, and challenges

- Rwanda has no multi-hazard risk communication plan.

R.5.2 Internal and partner communication and coordination - Score 5

Strengths/best practices

- The NEPCCC meets regularly and involves multiple stakeholders from different sectors.
- Communication coordination has been tested by real health emergencies.

Areas that need strengthening, and challenges

- There is a need to include the Rwanda Red Cross in the National Health Promotion working group.

R.5.3 Public communication - Score 5

Strengths/best practices

- The Health Sector Spokesperson is also the head of the RHCC.
- All announcements and press briefings are reviewed and approved by the head of the RHCC.
- All educational messages and tools are reviewed and approved by the National Health Promotion Technical Working Group.
- The National Health Promotion Technical Working Group collaborates with district/village health management teams.
- Rwanda's internal structures and information systems facilitate easy communication. These resources include IDSR, rapid SMS systems, and specialised toll free numbers.

- There is planned communication with continuous engagement and proactive media outreach during emergencies (including regular media briefings), in all relevant languages, achieving comprehensive geographical coverage.
- A team in charge of media relations manages all health sector social media channels and websites.
- Different languages and media channels are used depending on the target audience.

Areas that need strengthening, and challenges

- Rwanda has only one person trained in risk communication; it is of crucial importance that the whole team be trained.

R.5.4 Communication engagement with affected communities - Score 4

Strengths/best practices

- Health promotion teams coordinate activities related to education, social mobilization and community engagement.
- There is collaboration between the National Health Promotion Technical Working Group and district/ village health management teams.
- Volunteers are engaged in different risk communication activities.
- Religious leaders and community leaders are involved in disseminating information.

Areas that need strengthening, and challenges

- Simulations should involve affected communities as equal partners in the communication process.

R.5.5 Dynamic listening and rumour management - Score 4

Strengths/best practices

- Rwanda tracks rumours and misinformation through daily media review and monitoring.
- Daily media review and monitoring is always shared with all relevant senior officials.

Areas that need strengthening, and challenges

- Rwanda's rumour management system should be subjected to monitoring and evaluation in order to assess its effectiveness.

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 the 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 also designate ground crossings as points of entry). These should implement specific public health measures 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, designated ground crossings), which implement specific public health measures to manage a variety of public health risks.

Rwanda: level of capabilities

Rwanda is a landlocked country with points of entry that include air, lake and ground crossings. It has 22 gazetted border points, according to official documents dated September 2013. Of these 22 points of entry, two are inland border points and 20 are land borders (six with Uganda, seven with the DRC, one with Tanzania and six with Burundi). It is unclear how many of these points of entry have been designated for IHR core capacity building for human health, but 12 have been designated for animal health.

Stakeholders operating at points of entry include the MOH; MINAGRI; RAB; REMA; the Rwanda Revenue Authority; the Ministry of Commerce; the RSB, Rwandan security bodies; and the disaster management agencies.

Most of these points of entry have no access to appropriate medical supplies, but Kigali International Airport and the border with DRC at Rubavu have emergency care services, permanent staff, basic personal protective equipment (PPE), isolation rooms, and thermal screening systems. Furthermore, an MOU is in place for collaboration between the Rwanda Civil Aviation Authority (Kigali International Airport) and the Rwanda Military Hospital (RMH). Transport for ill clients is available at Kigali International Airport, whilst for ground crossings, special arrangements have been made with the nearest health facilities for provision of personnel and ambulance services.

For animal health, there are quarantine facilities at the Rubilizi and Ndera points of entry. A bilateral agreement is in place with Uganda for disease control, including vector control, through Law N° 54/2008 of 10/09/2008 determining the prevention and fight against contagious diseases for domestic animals in Rwanda, Art. 142-143. However, it is worth noting that there are no specific measures in place for public health (although sanitation measures are in place for premises around points of entry, and there is residual indoor spraying). Vector control measures are also carried out, and there are qualified animal health staff at all major points of entry. Specific programmes include measures such as issuing veterinary health certificates to accompany imported animals; running quarantine stations through which imported animals must pass before entering the country; implementing vector control programmes (e.g. tsetse fly

traps), especially in the Eastern Province; carrying out a vaccination programme (especially against Rift Valley Fever), and regular spraying of acaricides to counter ticks.

Those borders that experience high volumes of traffic have an inspection programme for conveyances, conducted by the Rwanda Environment Management Authorities in order to ensure a safe environment; but there are no port health personnel trained in the inspection of conveyances.

There is no national public health emergency contingency plan for responding to public health emergencies occurring at points of entry—but during the Ebola outbreak in West Africa in 2013-16, ad hoc counter measures were implemented, and all relevant stakeholders were involved.

Recommendations for priority actions

- Develop a public health emergency contingency plan for POE that is linked to the national all hazards public health EPR plan, and which involves all relevant sectors (human, environmental, agriculture, wildlife, etc.).
- Develop standards for infrastructure capacity building at POE, especially newly-designated POE.
- Extend the current Epidemic Surveillance and Response division's mandate to cover port health and establish fully functional national and sub-national port health services.
- Strengthen technical capacity for port health services through pre-service and in-service training.

Indicators and scores

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

Strengths/best practices

- There is a clinic at Kigali International Airport.
- Animal health, environmental and agriculture staff are available at the major points of entry.
- Thermal screening is in place at Kigali International Airport, and laser thermometers are used at hotspot borders.
- All staff of the Rwanda Directorate General of Immigration and Emigration (DGIE) stationed at borders are trained in management of Ebola Virus Disease, and a full scale Ebola simulation exercise has been conducted.
- An MOU is in place for collaboration between the Rwanda Civil Aviation Authority (Kigali International Airport) and the RMH.
- A needs assessment for border health capacity has been conducted.
- A baseline animal product survey was conducted at points of entry in 2011.
- There is a bilateral agreement between Rwanda and Uganda for disease control, including vector control.

Areas that need strengthening, and challenges

- There is no public health emergency contingency plan for points of entry.
- Port health services at points of entry require strengthening.
- Standard infrastructure should be strengthened.
- A multisectoral workforce is needed at all designated points of entry.
- Rapid diagnostic capabilities are lacking.

- Further capacity should be built for conveyance inspection.
- A programme is needed to address porous borders through cross border surveillance.
- There is a need to address financial sustainability of IHR-related measures at points of entry.

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

Strengths/best practices

- District hospitals have effective medical transport, and collaborative measures are in place (including for transport and personnel) that link points of entry with the nearest health facilities.
- Inspection services are in place at major points of entry (animal health, environmental and agricultural and standards inspections).
- Capacity is in place for rapid detection of fever in travellers at Kigali International Airport.
- A needs assessment on border human health capacity was carried out in March 2016.
- Baseline animal products surveys were carried out at points of entry in 2011.

Areas that need strengthening, and challenges

- A multi-hazard port health plan is required.
- Detection and response capacity should be built for public health events at points of entry.
- Quarantine/isolation facilities are required at designated points of entry.

Chemical events

Introduction

States Parties should have 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.

Target

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

Rwanda: level of capabilities

Rwanda shows substantial use of chemicals (particularly in the agro-pastoral, health and domestic sectors, and with some use in industry); but they are inadequately managed, or managed in a piecemeal fashion. Chemicals are mainly imported from ports in Kenya and Tanzania, from Uganda, and with some transit from Burundi and DRC.

Agrochemicals are controlled through the Agrochemicals Law, and use of pharmaceuticals is controlled by legislation. There are regulations for management of toxic and hazardous waste (2017) and practical guidelines for incineration (2010), but there is no law addressing the whole lifecycle of chemicals. The Ministry of Environment (through the REMA) monitors air and water contaminants, and the RSB monitors consumer products.

In 2009 a national chemicals profile was prepared that provides administrative infrastructure for management of chemicals and an inventory of chemicals used in the country. National implementation plans for the Strategic Approach to International Chemicals Management (SAICM) and some multilateral environmental agreements (MEAs) have been prepared. Rwanda has ratified the Basel, Minamata, Rotterdam and Stockholm Conventions; participates in the Intergovernmental Committee on Chemicals Management (ICCM); is a signatory of the Organization for the Prohibition of Chemical Weapons (OPCW); and participates in regional activities. The Globally Harmonized System for Classification and Labelling of Chemicals (GHS) is being implemented. International Labour Organization (ILO) conventions 170 and 174 are not yet in force.

Some guides and procedures for sound chemicals management have been elaborated, but these are only partially implemented. Capacity building is needed to ensure the implementation of the MEAs. There is some access to international databases relating to chemicals (e.g. through WHO's International Programme of Chemical Safety/IPCSINCHEM system). Capacity is available to monitor chemical contamination of food, and Rwanda is a member of the Codex Alimentarius.

An inter-ministerial coordinating mechanism for stakeholder consultation and for managing chemical events exists, and is being formalized. Ministry of Health toxicological capacity for chemicals and exposure monitoring is lacking.

Awareness of chemical risks and events remains poor, with little general appreciation of the implications for response at decision-maker levels. Coordination with other IHR sectors is partial, and communication of chemical risks needs strengthening. Public education on chemical risks should be improved through programmes on identifying chemicals, minimizing risk, and the actions that are available to respond to emergencies.

Further training and capacity building of human resources in chemicals risk assessment and communication is desirable, as is the strengthening of existing training for chemical events response for first responders and medics (medical professionals currently often have inadequate knowledge of diagnosis and management of diseases of chemical aetiology). The issue of ensuring access to pharmaceuticals and medical supplies for chemical emergency response is only partially addressed.

There is a toxicology section at the National Reference Laboratory, and the Forensic Laboratory is well equipped for toxicology analyses, but they do not provide a regular service to clinical treatment hospitals. Laboratory capacity to detect and respond to chemical events is low in all regions of the country. SOPs are not comprehensive, and analytical toxicology capacity for exposed patient diagnosis and treatment remains weak or non-existent at many health facilities. Existing laboratory capacity for identifying viral and bacteriological diseases could be expanded for some toxicological testing.

Emergency services are available in the case of an important chemical disaster, and can provide helicopter and other rapid transport facilities for transferring patients for treatment, and samples for analysis. Hospitals are not, however, equipped with facilities for decontaminating people exposed to chemicals.

Rwanda has no national centre for toxico-vigilance and pharmacovigilance, which would be an important component for 24/7 identification and surveillance of chemical risks (particularly acute exposures), and which could perform systematic collection of case data. Urgent consideration should be given to whether it is adequate to rely on other countries for this function.

There is a need to develop capacity for identification and surveillance of chemical risks from chronic exposure. Some small capacity exists for identifying chemical risks associated with contamination of food. While the health sector cooperates with the emergency services (coordinated through the Ministry of Disaster Management), there remain important gaps in systematic harmonized data collection and information exchange on chemical events. There is no regular analysis of the information collected with a view to learning from past experience and epidemiological follow up.

Financial resources are only partially available for chemical event responses. All industrial installations (including small/medium sized enterprises) are required to prepare an environmental impact assessment, for which environmental management plans must include chemical emergency preparedness and response plans for the periphery as well as the interior of the installation.

There is a partial system for tracking important hazardous chemical consignments entering the country, but registration and tracking capacity needs to be strengthened. No significant chemical incidents have occurred in the country, so there is no experience of managing such events. Comprehensive chemical emergency plans need to be developed—along with a strategy and SOPs—and regularly tested and improved through simulation exercises.

Recommendations for priority actions

- Strengthen surveillance of banned and controlled chemicals at frontiers.
- Identify and train first responders for chemical emergency response.
- Streamline CBRNE capacity, including for importation, traceability, management and disposal of chemicals.
- Establish a legal framework for implementing the ratified international conventions.
- Promote mainstreaming of emergency response to chemical incidents in relevant sector plans.
- Promote capacity building of competent bodies (regarding infrastructure, technical capabilities and trained human resources) for surveillance and enforcement of chemicals management regulations.
- Review the need to establish a national poison information centre and related medical and analytical facilities, operating 24/7.

Indicators and scores

CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies - Score 3

Strengths/best practices

- A national taskforce is in place—the Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) Team
- Chemicals mapping has been done.
- Legislation and policies on chemical management are in place.
- Rwanda is a signatory state for international conventions related to chemical management (Rotterdam, Basel, Stockholm, Minamata, etc.) and has developed a SAICM implementation plan.
- There is a strategic plan for managing chemical events.
- There is central laboratory capacity for detection.

Areas that need strengthening, and challenges

- There is a need for capacity building in term of human resources and equipment for detection and management of chemical events.
- Community awareness requires strengthening.
- There is a need for a traceability mechanism.

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

Strengths/best practices

- Legislation and policies on chemical management are in place.
- A strategic plan is in place for managing chemical events.

Areas that need strengthening, and challenges

- There is a need to increase and improve stakeholder collaboration and synergy regarding chemicals management.
- Legal frameworks are needed for the international conventions that Rwanda has ratified.

Radiation emergencies

Introduction

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

Target

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

Rwanda: level of capabilities

The main sources of radiological hazards in Rwanda are associated with medical equipment and small-scale uses of radiation in industry. With correct use of such equipment the hazard of exposure is low—but some risks remain, associated with misuse; criminal diversion; uncontrolled disposal of obsolete equipment; and radioactive materials that might be dumped illegally or released though a natural disaster (e.g. seismic activity or flooding).

There is no nuclear power generation in Rwanda and no nuclear reactors. Plans are in hand to construct a radio-therapeutic centre (under the guidance of the IAEA).

The authority of the Rwanda Utility and Regulatory Agency (RURA) has been expanded to cover radiation sources, and a strategic plan for radiation safety has been developed, with IEAE guidance, as an Integrated Support Plan. This complements the CBRNE strategic plan now awaiting cabinet approval. In the pipeline there are also plans to integrate a disaster management plan with the CBRNE plan, and standards and guidelines are being provided through the RSB.

Intersectoral coordination in emergency response is regulated by MIDIMAR. Coordination and cooperation mechanisms are formalized between the various national authorities responsible for radiological and nuclear events: the MOH and the IHR NFP.

A comprehensive inventory is being made of potential sources of radiation and the magnitude of these hazards, and a survey is being done of equipment and radiological sources for medical use. Monitoring of consumer products (e.g. foodstuffs and goods) for radiation hazards is undertaken through the RSB, which also provides laboratory capacity for systematic analysis. An inventory of reference health care facilities for radiation emergencies was undertaken in 2012.

Operators of equipment used in hospitals and industrial applications that could require on-site protective actions are monitored regularly using radiation dosimeters—but readings from dosimeters are not systematically registered. There are protocols and guidelines for case management regarding radio nuclear hazards, and the NDMEC is tasked with responding to nuclear and radiological emergencies. Procedures on emergency response need to be developed for the organizations involved.

Through the IEAE, Rwanda is a party to the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency and the Convention on Early Notification of a Nuclear Accident, as well as a number of other important conventions and treaties concerning the safe and peaceful use of nuclear energy. Rwanda is a party to the Non Proliferation Treaty, and has acceded to the IEAE Code of Conduct for the Transport of Radiation Materials plus its amendment protocol (signed in 2017). Rwanda is also a party to the African Nuclear Energy Treaty.

Current human and financial resources are not sufficient to meet the needs of radiation safety.

There is a need to strengthen national laboratory facilities for identifying and measuring samples to detect radioactivity (used for environmental safety and consumer product control), and for monitoring the radiation-exposed workforce. Training of medical radiation personnel has been provided abroad, but qualified technical experts require further training from IAEA. Furthermore, arrangements should be put in place for national and international transport of radioactive materials, samples and waste.

A system should be introduced for preparing a real-time inventory of transits of radioactive materials, which would allow tracking of consignments to their destinations. There should be an obligation to return obsolete materials and equipment to the manufacturer for disposal, and Rwanda should have a storage facility for confiscated materials and equipment.

A review is required of the medical facilities that could be developed to manage patients contaminated with radioactive substances and patients with overexposure. SOPs for management of radiation emergencies need to be developed, and guidelines should be established for undertaking live drills and simulation exercises with all stakeholders in order to test the effectiveness of emergency response.

Recommendations for priority actions

- Strengthen the capacity of the CBRNE National Team to respond to radiation emergencies.
- Develop guidelines and standards/SOPs on the use of radiological materials.
- Build human resources and equipment capacity for detecting and managing radiological events.

Indicators and scores

RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies - Score 3

Strengths/best practices

- A national taskforce (the CBRNE national team) is in place.
- Radiological mapping has been done.
- Legislation and policies on management of nuclear and radiological emergencies are in place, and there is a strategic plan for managing radiological events.
- Rwanda is a signatory to international conventions related to nuclear and radiological issues (e.g. the Treaty on the Non-Proliferation of Nuclear Weapons).
- There is laboratory capacity for detecting radioactivity.

Areas that need strengthening, and challenges

- Awareness of good practices should be built among health professionals.
- Standard infrastructure is required for X-ray rooms, with accompanying SOPs.
- Capacity building is required in terms of human resources and equipment for detection and management of radiological events.
- SOPs and regulations are required for disposal of radiological equipment and products.

RE.2 Enabling environment is in place for management of radiation emergencies - Score 3

Strengths/best practices

- Legislation and policies on radiation management are in place.
- There is a strategic plan for managing radiation events.

Areas that need strengthening, and challenges

- There is a need to build collaboration and synergy between stakeholders in radiological management.
- Rwanda should domesticate the international conventions that it has ratified.

Appendix 1: JEE background

Mission place and dates

Nyamata, Rwanda, May 14-18, 2018

Mission team members:

- Ambrose Talisuna (team lead), WHO Regional Office for Africa
- Maureen Bartee (team co-lead), US Centers for Disease Control and Prevention
- Maria Axelsson, Public Health Agency of Sweden
- Zandile Dhlamini, Swaziland Ministry of Health
- Pierguiseppe Facelli, World Organisation of Animal Health
- Naomi Adeline, Seychelles Ministry of Health
- John Haines, United Nations Institute for Training and Research (UNITAR)
- Raoul Kamadjeu, United Nations Children's Fund (UNICEF)
- Fredrick Kivaria, United Nations Food and Agriculture Organization (FAO)
- Nhlanhla Nhlabatsi, Swaziland Ministry of Health
- Mark Nunn, Independent writer and editor
- Roland K. Wango, WHO Regional Office for Africa

Objective

To assess Rwanda's capacities and capabilities relevant to the 19 technical areas of the JEE tool, for providing baseline data to support Rwanda'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 Rwanda 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 experts, or among the Rwanda 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.

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 Rwanda was not independently verified but was discussed and the evaluation rating mutually agreed to by the Rwandan team and the evaluation team. This was a peer-to-peer review.

Key Rwanda participants and institutions

Ministries

- Ministry of Health
- Ministry of Disaster Management and Refugees
- Ministry of Foreign Affairs, Cooperation and East Africa
- Ministry of Agriculture
- Ministry of Commerce
- Ministry of Defense
- Ministry of Justice
- Ministry of Finance and Economic Planning.

Other Government Institutions

- Rwanda Biomedical Centre
- Rwanda Agriculture Board
- Rwanda Standards Board
- Rwanda National Police
- National Intelligence and Security Services
- Directorate General of Immigration and Emigration
- Rwanda Revenue Authority/Customs
- Rwanda Development Board: Tourism and Conservation
- Rwanda Law Reform Commission
- University of Rwanda: College of Medicine and Health Sciences & College of Animal and Veterinary Medicine
- University Teaching Hospitals: CHUB, CHUK
- District Hospital: Kacyiru & Gisenyi

JEE Observers

- Private Sector Roundtable: Johnson & Johnson, UPS
- CDC Rwanda
- MSH Rwanda

Individual participants and their institutions

- Balisanga, Nyiramazaire Helene RBC
- Ciza, Philbert MoH
- Gatera, Raymond RLRC
- Gisele, Gatariki Munyuza RBC
- Habinshuti, Phillippe MIDIMAR

Hakizimana, Jean Leonard	RBC
Ingabire, Angelique	RAB
Isidore, Gafarasi Mapend	RAB
Kabagema, Ignace	MoH/SAMU
Kabeja, Adeline	RBC
Kabera, Emmanuel	REMA
Kapiteni, Alexis	RBC
Kayumba, Malick	RBC
Kayumba, Pierre Claver	UR
Manzi Mulisa, Olivier	CHUK
Mudakikwa, Antoine	RDB
Munyaneza, Laurent	RRA in charge of customs at borders
Munyangabe, Pascal	MoD
Murekatete, Celine	RBC
Musafiri, Eustache	RAB
Mwera, Sarah	RAB
Ndoli, Minega Jules	CHUB
Niyibaho, Jeanne	RBC
Nizeyimana, Felicien	RBC
Nkurunziza, Innocent	Kacyiru Hospital
Nshimiyimana, Emmanuel	RBC
Nshimiyumukiza, Ossiniel	MINICOM
Nyamusore, Jose	RBC
Nyiridandi, Kibasha Evariste	NISS/DGIE
Nzayirambaho, Manasse	UR
Ramuli, Janvier	NISS/DGIE
Rucogoza, Aniceth	RBC/RNL
Rukundo, Olivier	RSB
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- Decentralisation Policy (June 2012)
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- Fourth Health Sector Strategic Plan (July 2018-June 2024)
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