

JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES

of
REPUBLIC OF NAMIBIA

Mission report:
28 November – 2 December 2016



**World Health
Organization**

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Abbreviations

AFENET	African Field Epidemiology Network
AFP	acute flaccid paralysis
Africa CDC	Africa Centres for Disease Control and Prevention
AMR	antimicrobial resistance
AU-IBAR	African Union Inter-African Bureau for Animal Resources
BCG	Bacillus Calmette–Guérin
bOPV	bivalent oral poliomyelitis vaccine
BSE	bovine spongiform encephalopathy
CCHF	Crimean-Congo haemorrhagic fever
CDC	Centers for Disease Control and Prevention (of the United States of America)
CVL	Central Veterinary Laboratory (of Namibia)
DHS	Demographic and Health Survey
DRMC	National Disaster Risk Management Committee (of Namibia)
DVS	Directorate of Veterinary Services (of Namibia)
EOC	emergency operation centres
EPI	Expanded Programme on Immunization
EVD	Ebola virus disease
FAO	Food and Agriculture Organization of the United Nations
FELTP	Field Epidemiology and Laboratory Training Program
FETP	field epidemiology training programme
GAP-AMR	Global Action Plan for antimicrobial resistance
GHSA	global health security agenda
HCAI	health care associated infection
HEP	Health Extension Programme
Hip B	haemophilus influenza type B
IEC	Information, Education and Communication
IHR	International Health Regulations
IPC	infection prevention and control
IPV	inactivated poliomyelitis vaccine
ISDR	Integrated Disease Surveillance and Response
JEE	joint external evaluation
LIS	laboratory information system
MCM	medical countermeasures
MCV2	second dose of measles containing vaccine

MoAWF	Ministry of Agriculture, Water and Forestry (of Namibia)
MoET	Ministry of Environment and Tourism (of Namibia)
MoH	ministry of health
MoHAI	Ministry of Home Affairs and Immigration (of Namibia)
MoHSS	Ministry of Health and Social Services (of Namibia)
MoU	memorandum of understanding
NHEMC	National Health Emergency Management Committee (of Namibia)
NHEPRP	National Health Emergency Preparedness and Response Plan (of Namibia)
NIP	Namibia Institute of Pathology
NPT	Non-Proliferation Treaty
NUST	Namibia University of Science and Technology
OIE	World Organisation for Animal Health
PHEIC	public health emergency of international concern
PoE	point of entry
PVS	Performance of Veterinary Services
RDTs	rapid diagnostic tests
RRT	rapid response teams
RVF	Rift Valley fever
SADC	Southern African Development Community
SIAs	supplementary immunization activities
SLIPTA	Stepwise Laboratory Improvement Process Towards Accreditation
SLMTA	Strengthening Laboratory Management Toward Accreditation
SOPs	standard operating procedures
TB	tuberculosis
TEPHINET	Training Programs in Epidemiology and Public Health Interventions Network
tOPV	trivalent oral poliomyelitis vaccine
UNAM	University of Namibia
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
VL	viral load
VPD	vaccine preventable diseases
WCBA	women of child bearing age
WHO	World Health Organization

Executive summary

Findings from the joint external evaluation

In the second half of 2016, the Republic of Namibia voluntarily requested for a JEE to be conducted. Following a self-assessment using the JEE tool by internal country stakeholders, an external validation of the JEE findings was conducted on 28 November–2 December 2016 at the Windhoek Country Club. A twelve-member team of external subject matter experts conducted the JEE.

Major findings:

Key strengths / best practices

It is evident that there is political and technical commitment on the part of senior staff in the Ministry of Health and Social Services (MoHSS) of Namibia, including the minister, the deputy permanent secretary, the former permanent secretary, as well as from senior staff from the Ministry of Agriculture, Water and Forestry (MoAWF).

Several laws and policies exist to support the implementation of IHR (2005). The IHR coordination, advocacy and communication mechanism is designated and includes an IHR national focal point for reporting to WHO, and a delegate for reporting to the World Organisation for Animal Health (OIE) and Food and Agriculture Organization of the United Nations (FAO). Health emergency management committees have been established at national, regional and district levels.

There is a robust laboratory system and network in both human and animal health, with web-based laboratory results shared with regional and district hospitals, and some health centres, with clear oversight by the Namibia Institute of Pathology (NIP).

There is a strong real-time surveillance system, with indicator-based and syndromic surveillance, and some event-based surveillance using the Integrated Disease Surveillance and Response (IDSR) strategy, which also includes surveillance of zoonoses.

The ongoing investment in the education of health professionals is impressive. It is crucially important that Namibia is investing in the future and offering graduates a clear career path in their own country.

In areas where the country lacks capacity in human resources, Namibia has established memoranda of understanding (MoUs) with foreign academic institutions, and a field epidemiology training programme (FETP) has been established.

Regarding zoonoses and the One Health approach, Namibia has well-organized veterinary services and its zoonotic surveillance system has qualified staff at all three levels. There is in-country training for veterinary professionals and para-professionals. The zoonotic surveillance system is complimented by well-established human-health sector real-time surveillance. A dog-related rabies-control program has been initiated as a pilot in one district and this is planned for expansion to the whole country.

A great variety of messaging channels are used for risk communication and engages the community at all levels.

Areas that need further improvement

There is a lack of clarity around the participation, roles, responsibilities, relationships and authorities of key organizations such as the office of the prime minister, the ministries of environment, wildlife, and

home affairs, port authorities, and other relevant stakeholders. This presents a risk in the event of rapidly escalating situations that result in losing precious time for ministerial-level decision making. Clarification in advance through coordination bodies and formal policy documents will ensure all stakeholders can act within clear lines of responsibility and authority. Moreover, there remain challenges with respect to coordination of all relevant stakeholders underpinned by the One Health approach. There is, therefore, a need to improve the participation and engagement of other sectors (such as the agriculture ministry, port authorities, the environment and wildlife sectors, and security agencies) through strengthening the One Health coordination mechanism.

Collaboration between human health, animal health and wildlife should be strengthened through the establishment of a One Health platform. This platform could provide a forum for sharing data between sectors.

Namibia is obliged, as a Member State of WHO and FAO, to respect and abide by resolutions regarding antimicrobial resistance (AMR), and in September 2016, a United Nations General Assembly resolution urged Member States to develop national action plans for AMR. The JEE team concluded that, although there is a lot of knowledge about AMR, the development of a national multisectoral plan for AMR in Namibia has not even begun. AMR is a silent killer and it is estimated that, if nothing is done, 10 million people will die yearly due to AMR by 2050. AMR is a One Health issue that requires ministries of health to cooperate closely with ministries of agriculture. Upon request from Namibia, WHO and FAO will jointly offer assistance to develop a national action plan for AMR.

Namibia needs to review its public health workforce strategy to include all relevant professionals for health security, including epidemiologists, veterinarians, social scientists, and logisticians. Furthermore, there will be a need to establish minimum staffing norms for health security at all levels.

Other critical actions that need further consideration include:

- Establishing a national institute of public health.
- Developing a “whole of government / whole of society” plan for biosafety and biosecurity.
- Establishing functional emergency operation centres (EOCs) at national level (office of the prime minister for disasters and public health EOCs), and the strengthening of rapid response teams (RRTs) at regional and district levels.
- Strengthening the timely reporting of notifiable diseases to WHO, OIE and other international partners.
- Formulating a policy and plan for addressing radiation and chemical hazards which considers the creation of a permanent practice from regional to national levels (with periodic regular exercises to map the gaps between the written plans and the reality on the ground).
- Institutionalizing the conduct of regular exercises to test systems and programs and assess the involvement of all relevant sectors.
- Developing accessible transport for transferring potentially infectious patients to designated isolation facilities and designating focal points at points of entry (PoE) in view of the fact there are no isolation facilities at PoE.
- Developing a comprehensive, multisectoral national risk communication strategy and providing adequate human, logistic and financial resources to it.
- Strengthening event-based surveillance (according to IDSR guidelines as adopted by the country).

Namibia scores

Technical area	Indicators	Score
National legislation, policy and financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of International Health Regulations (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
IHR coordination, communication and advocacy	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR	2
Antimicrobial resistance	P.3.1 Antimicrobial resistance detection	1
	P.3.2 Surveillance of infections caused by resistant pathogens	1
	P.3.3 Healthcare associated infection prevention and control programmes	1
	P.3.4 Antimicrobial stewardship activities	1
Zoonotic disease	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	5
	P.4.2 Veterinary or animal health workforce	4
	P.4.3 Mechanisms for responding to zoonoses and potential zoonoses are established and functional	2
Food safety	P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination	3
Biosafety and biosecurity	P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	1
	P.6.2 Biosafety and biosecurity training and practices	1
Immunization	P.7.1 Vaccine coverage (measles) as part of national programme	3
	P.7.2 National vaccine access and delivery	4
National laboratory system	D.1.1 Laboratory testing for detection of priority diseases	4
	D.1.2 Specimen referral and transport system	4
	D.1.3 Effective modern point-of-care and laboratory-based diagnostics	3
	D.1.4 Laboratory quality system	4
Real-time surveillance	D.2.1 Indicator- and event-based surveillance systems	3
	D.2.2 Interoperable, interconnected, electronic real-time reporting system	2
	D.2.3 Analysis of surveillance data	3
	D.2.4 Syndromic surveillance systems	4
Reporting	D.3.1 System for efficient reporting to WHO, FAO, and OIE	2
	D.3.2 Reporting network and protocols in country	3
Workforce development	D.4.1 Human resources are available to implement IHR core capacity requirements	2
	D.4.2 Field epidemiology training programme or other applied epidemiology training programme in place	4
	D.4.3 Workforce strategy	2

Preparedness	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented	2
	R.1.2 Priority public health risks and resources are mapped and utilized	1
Emergency response operations	R.2.1 Capacity to activate emergency operations	1
	R.2.2 Emergency operations centre operating procedures and plans	1
	R.2.3 Emergency operations programme	1
	R.2.4 Case management procedures are implemented for IHR relevant hazards.	2
Linking public health and security authorities	R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) are linked during a suspect or confirmed biological event	2
Medical countermeasures and personnel deployment	R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency	1
	R.4.2 System is in place for sending and receiving health personnel during a public health emergency	1
Risk communication	R.5.1 Risk communication systems (plans, mechanisms, etc.)	1
	R.5.2 Internal and partner communication and coordination	2
	R.5.3 Public communication	3
	R.5.4 Communication engagement with affected communities	2
	R.5.5 Dynamic listening and rumour management	2
Points of entry	PoE.1 Routine capacities are established at points of entry	1
	PoE.2 Effective public health response at points of entry	1
Chemical events	CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies	1
	CE.2 Enabling environment is in place for management of chemical events	2
Radiation emergencies	RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies	2
	RE.2 Enabling environment is in place for management of radiation emergencies	2

PREVENT

National legislation, policy and financing

Introduction

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

Target

States Parties 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 a few legislations, regulations or other instruments in order to facilitate their implementation and maintenance in a more efficient, effective or beneficial manner. State Parties to ensure the provision of adequate funding for IHR implementation, through the national budget or another mechanism.

Namibia level of capabilities

Namibia has an extensive and comprehensive legal framework to support the implementation of the IHR (2005). Supporting legislation includes regulations on trade, food safety, hazardous substances, laboratories, animal health and preparedness. The most recent addition to national legislation supporting implementation of the IHR (2005) was the reformulation, in 2015, of the Public Health Act (1919) into the Public and Environmental Health Act (2015). Policies such as the Port Health Strategy (2016) and National Ebola Preparedness Plan (2015) have been adopted. MoUs between relevant ministries and standard operating procedures (SOPs) with neighbouring countries have been developed. However, some regulations that are out of date and overlap require review. An assessment of the gaps in relevant legislation and other governmental instruments was performed by the Ministry of Health and Social Services (MoHSS) in 2011. Funding for the implementation of IHR (2005) is not sufficiently available at all levels of health care.

Recommendations for priority actions

- The National IHR Focal Point should assess the existing legislation, regulations, policies, strategies, plans and guidelines for their content, relevance to IHR (2005) and the One Health approach, especially focusing on possible overlaps, contradictions and out-of-date practices; and report the findings to the MoHSS and the cabinet committee for legislative evaluation.
- The mechanisms for multisectoral, multi-stakeholder collaboration, SOPs and MoUs for the implementation of the IHR should be reviewed and developed accordingly.
- Adequate funding for the implementation of the IHR at all levels should be ensured.

Indicators and scores

P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of International Health Regulations (IHR) (2005) – Score 3

Strengths/best practices

- Namibia has extensive and comprehensive multisectoral legislation, regulations, policies, strategies and agreements to support the implementation of the core capacities of the IHR (2005).
- Where shortages have been encountered, national legislation has been developed, as demonstrated most recently by the amendment of the Public and Environmental Health Act (2015).
- Decision makers, public health professionals and other stakeholders have shown engagement with the implementation of the IHR.

Areas that need strengthening and challenges

- Multisectoral collaboration in the development and implementation of national legislation, regulations, policies, plans and guidelines need to be enforced in the context of the One Health approach.
- The extensive list of current regulations needs verification by technical specialists with regard to their validity and timeliness, and overlapping or even contradictory areas need to be analysed.
- Outdated regulations should be eliminated. Sufficient funding to all levels of health care needs to be ensured to fully implement the IHR (2005).

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

Strengths/best practices

- Namibia has successfully developed and reformulated national legislation, policies and governmental instruments to ensure compliance with the IHR (2005).
- Namibia has demonstrated advocacy and interest in developing its IHR capabilities through participation in external country evaluations and the subsequent development of gaps identified in 2011.
- The National Health Emergency Committee of Namibia acts as the National IHR Focal Point. The committee was reconstituted in early 2016 and has representation from various ministries and other stakeholders relevant to the IHR. The prime minister's office formulates and updates the national emergency plan and coordinates emergency preparedness at the national level.

Areas that need strengthening and challenges

- Coordination and collaboration between different sectors and ministries should be further improved so that the IHR can be fully implemented.
- Despite the availability of extensive and comprehensive legislation relevant to the IHR, some of the regulations need updating to reduce on areas of overlap.
- Moreover, sustainable funding at all levels of health care needs to be ensured to fully implement the IHR (2005).

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 other stakeholders in the country. States Parties to provide WHO with contact details of their National IHR Focal Points, as well as continuously update and annually confirm them.

Namibia level of capabilities

The National Health Emergency Management Committee (NHEMC) of Namibia acts as the National IHR Focal Point and is available at all times. The committee was reconstituted in early 2016 and representatives from various ministries and other stakeholders relevant to the IHR sit on it. The committee coordinates plans and responds to national public health emergencies according to the 2013 revised National Health Emergency Preparedness and Response Plan (NHEPRP) and meets regularly. The NHEMC is mandated by the MoHSS. Similar committees exist also at the district and regional levels but they meet only if necessary. The MoHSS is represented on the National Emergency Response Committee under the office of the prime minister.

Recommendations for priority actions

- Strengthen IHR coordination by setting up a functional mechanism, body or office to be responsible for IHR coordination and communication and to ensure availability at all times.
- Implement simulations, drills and post-event action reviews in order to recognize weaknesses in the response processes and continuously monitor and develop IHR performance.

Indicators and scores

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

Strengths/best practices

- The IHR (2005) has been incorporated in national legislation under various ministries in collaboration with the MoHSS.
- Multisectoral Health Emergency Management Committees operate at national, district and regional levels.
- The terms of reference for the NHEMC, serving as the National IHR Focal Point, have been stipulated.
- In addition to the regular meeting of the NHEMC, informal communication and information sharing exists between the different stakeholders involved.

- The success of coordinating IHR implementation and its integration into relevant sectors relies on competent professionals.

Areas that need strengthening and challenges

- Representatives from ministries responsible for chemical and nuclear health hazards, as well as biosafety and biosecurity, do not yet sit on the NHEMC nor do they participate in national health emergency preparedness or response plans.
- There is currently no representative of the Ministry of Defence on the NHEMC.
- No regular simulations to test the functionality of the mechanisms of the NHEMC have been conducted, nor have existing programmes been tested.
- No formal body or office for the National Focal Point has been established.

Antimicrobial resistance

Introduction

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

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

Target

Support work coordinated by the FAO, OIE and WHO for developing an integrated and global package of activities to combat antimicrobial resistance, spanning human, animal, agricultural, food and environmental aspects (i.e. a One Health approach). This would include: (i) having a national comprehensive plan for each country to combat antimicrobial resistance; (ii) strengthening of surveillance and laboratory capacity at the national and international levels following agreed upon 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.

Namibia level of capabilities

Namibia is doing a great deal of work to prevent AMR. There is restricted use of antimicrobials in the animal health sector and antimicrobials can only be used on prescription by a veterinarian. Use of antimicrobials as growth promoters is banned. Resistance against bacteria is routinely tested in human health laboratories through sensitivity tests. Sensitivity tests are not routinely performed in the animal health sector. There are no mechanisms in place for a coordinated multisectoral strategy and there is no national action plan in place. Namibia has not yet started the preparation of a national action plan as required by the WHO Global Action Plan that was endorsed by a UN General Assembly Resolution in September 2016. It seems that the necessary structures are in place, however, there is no common strategy or multisectoral approach.

Recommendations for priority actions

- Establish a National Action Plan for AMR that is aligned with the Global Action Plan as requested by the 68th World Health Assembly Resolution, preferably formulated by a multisectoral committee on AMR with collaboration from public health and animal health authorities.
- Designate AMR reference laboratories for human health, animal health, food and environment.
- Establish surveillance of antimicrobial usage and AMR in humans and animals, to generate robust national data.

Indicators and scores

P.3.1 Antimicrobial resistance detection – Score 1

As there is no national plan for detection and reporting of priority pathogens, the host country proposed this score after a general discussion. The JEE team emphasized that many technical requirements are already in place and it would be relatively easy to improve this score within one year.

Strengths/best practices

- A ban on the use of antimicrobials as growth promoters in animal feeds.
- The exclusive use of prescriptions by a veterinarian in animal health.
- Several laboratories perform sensitivity testing.

Areas which need strengthening and challenges

- Develop a national action plan aligned to the Global Action Plan for AMR (GAP-AMR) in collaboration between the MoHSS and the MoAWF.
- Establish a multisectoral taskforce to address AMR.

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

Strengths/best practices

- Surveillance of infections in general is in place.

Areas which need strengthening and challenges

- Identify laboratory capacity, and address gaps and needs.
- Develop protocols for collecting and analysing data.

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

Strengths/best practices

- There is an awareness of the importance of infection prevention.
- Some policies for some elements of infection prevention and control exist.

Areas which need strengthening and challenges

- Develop and support implementation of national guidelines on infection prevention and control (IPC).
- Develop a coordinated approach to AMR.

P.3.4 Antimicrobial stewardship activities – Score 1

Strengths/best practices

- The animal health sector has actively tackled AMR.
- Use of antimicrobials as growth promoters in the livestock sector has been banned.

Areas which need strengthening and challenges

- Adoption of an integrated One Health approach.
- Raising awareness of AMR among the general public.
- The use of antimicrobials after sensitivity testing.
- Improving waste management in hospital settings.

Zoonotic diseases

Introduction

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

Target

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

Namibia level of capabilities

There has been tremendous improvement of veterinary services in Namibia since a Performance of Veterinary Services assessment was completed in 2008. The sector is highly organized with 1,173 qualified staff, among them 85 state veterinarians and 211 animal health technicians. A few vacancies still exist in the sector and these are attributed to inadequate resources to facilitate recruitment of new staff. Most of the veterinary staff are now Namibians and the new Veterinary School at the University of Namibia seeks to provide a sustainable workforce for the sector. So far two veterinary officers have joined the FETP. This training builds capacity for both pre-service and in-service officers.

The veterinary infrastructure is well established with 63 veterinary clinics, 16 manned border posts and several internal checkpoints. Namibia adheres to strict regulations in testing animals and animal products because of requirements from importing countries. There is an animal identification and traceability system that has greatly improved surveillance for animal diseases and cordoning of high-risk zones, especially in the north. Quarantine facilities are also available to detain animals from these areas before slaughter or export. The state-of-the-art Central Veterinary Laboratories are highly accredited. They could support the human health sector to provide diagnostic services for zoonoses such as rabies.

Namibia has listed a number of zoonotic notifiable diseases including anthrax, avian influenza, bovine spongiform encephalopathy (BSE), brucellosis, psittacosis (ornithosis), rabies, Rift Valley fever, salmonella enteritidis, mange mites and tuberculosis (TB). Reporting is immediate, monthly, quarterly and yearly, both vertically through the ministry and to bodies such as OIE, the Southern African Development Community (SADC), the African Union Inter-African Bureau for Animal Resources (AU-IBAR), FAO and WHO. Surveillance systems have been established for diseases such as rabies, BSE, avian influenza, cycstercosis, brucellosis, TB and salmonella, but these systems are not linked to the human health sector. Data sharing remains vertical within the individual sector and cross-sharing only occurs when needed. A rabies elimination strategy developed in 2011 is the best model of the One Health approach in Namibia because it brings together the animal health, human health, wildlife and security sectors. Other than this, there is no formal mechanism or forum between ministries and stakeholders to discuss and share information with respect to One Health and zoonoses.

The Directorate of Veterinary Services (DVS) has disease control protocols for brucellosis, Rift Valley fever and TB, and contingency plans have been developed for avian influenza and BSE. The plan for avian influenza and the rabies elimination strategy were developed in close collaboration with MoHSS. These can be found in the DVS Wiki, a web-based platform that has the documents related to animal health and disease control.

The human health sector reports zoonoses through weekly reporting in the Integrated Disease Surveillance System. Zoonotic diseases reported in the system include rabies, brucellosis and anthrax but reporting is also vertical through the MoHSS system but there is minimal sharing with the animal health sector.

The wildlife sector is managed through the Ministry of Environment and Tourism and diseases in wildlife are managed with collaboration with the DVS.

Recommendations for priority actions

- Adopt a One Health approach that will bring together relevant stakeholders to tackle zoonotic diseases.
- Establish formal mechanisms for sharing information on zoonotic diseases and outbreaks between the animal, human and environment / wildlife sectors at national and regional levels.
- Establish proper linkages between public health and animal health laboratories and leverage existing capacities.

Indicators and scores

P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens – Score 5

Strengths/best practices

- The zoonotic diseases of the greatest public health importance are listed and prioritized for prevention and control.
- Surveillance systems for more than six zoonotic diseases are in place.
- There is a national animal disease prevention plan for rabies, anthrax, brucellosis, and Rift Valley fever.

Areas which need strengthening and challenges

- The list of zoonotic diseases of public health importance needs to be reviewed periodically and ranked in order of priority.
- Surveillance systems should share information between the animal and human health sector.

P.4.2 Veterinary or animal health workforce – Score 4

Strengths/best practices

- The animal workforce is well established with veterinary professionals and para-professionals are present at all levels.
- Veterinary education is now available at national level.
- Veterinary officers have been introduced into the FETP.

Areas which need strengthening and challenges

- A significant number of vacancies remain in the sector that need to be filled to provide optimal services.

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

Strengths/best practices

- A national policy to combat zoonoses is in place.
- Both animal and human sectors have access to well-equipped laboratories for early detection of diseases and outbreaks.
- The animal health sector is very well organized, with disease protocols and contingency plans in place.

Areas which need strengthening and challenges

- A mechanism for a coordinated multisectoral approach to outbreaks of zoonotic diseases needs to be established.
- Information sharing between sectors needs to be strengthened and formalized
- Documents developed for animal diseases of a zoonotic nature need to be reviewed to reflect the One Health approach.
- A mechanism for a coordinated response to combat zoonoses in animal as well as human health needs to be established.

Food safety

Introduction

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

Target

State Parties to have surveillance and response capacity for risk 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.

Namibia level of capabilities

Food safety in Namibia is a joint effort between six ministries. The MoHSS is the lead ministry for food safety in Namibia and is responsible for consumer food safety in line with the Public and Environmental Health Act (2015). Municipalities are in charge of licensing and inspecting food vendors in the respective jurisdiction on behalf of the MoHSS.

Foodborne diseases and outbreaks can be detected through the routine surveillance system and national laboratories are accessible to make diagnoses. When further investigations are required, there are links with foreign laboratories, mostly in South Africa, that facilitate confirmation of analyses.

Recommendations for priority actions

- The monitoring system needs to be expanded to secondary processed foods.
- The mechanism for recall, and for the safety of imported food, needs to be expanded to all regions and strengthened in terms of human resources and facilities.

Indicators and scores

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

Strengths/best practices

- Mechanisms of coordinated approach have been established to detect and respond to foodborne disease and food contamination.
- Operational links have been established between surveillance and support staffs, food safety, public and animal health laboratories.
- The Agro Marketing and Trade Agency have been designated under the National Food Safety Policy to monitor food safety on all imported products using standards based on the Codex Alimentarius.
- Adequate personnel to respond to suspected foodborne outbreaks have been appointed.

Areas which need strengthening and challenges

- Coordination remains lacking and, responsible staff do not work in an intersectoral manner.
- Resources remain lacking.
- Trained personnel and sufficient staff at PoE are lacking.
- Public and environmental health regulations need to be finalized.

Biosafety and biosecurity

Introduction

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

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

Target

A whole-of-government national biosafety and biosecurity system is in place, 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.

Namibia level of capabilities

Namibia has legislation on biosafety, but it only addresses genetically modified organisms (Biosafety Act, 2006). Namibia has two important organizations running the most important laboratories specialized in human and animal health; the Namibia Institute of Pathology (NIP) and the Central Veterinary Laboratory (CVL).

The NIP has prepared biosafety manuals and SOPs in compliance with biosafety requirements as per ISO 15189, and provides continuing training for laboratory personnel in laboratory biosafety regarding such matters as the handling, transportation and receiving of infectious material. The CVL operates in a building with good infrastructure and equipment, and is continually improving its human resources capabilities. They hold updated certificates of accreditation and periodically pass through quality audits, including biosafety audits. In 2016, the CVL developed its biosafety policy and regulations and had training and implementation activities scheduled for 2017.

The NIP adopted and is applying the Stepwise Laboratory Improvement Process Towards Accreditation (SLIPTA) and Strengthening Laboratory Management Toward Accreditation (SLMTA) processes launched by WHO Regional Office for Africa in 2009 to strengthen laboratories in the Region in compliance with ISO 15189 standards. This has led the NIP to achieve the certificate of accreditation ISO 15189 for clinical laboratories that include biosafety measures.

The CVL possesses the ISO / IEC 17025:2005 certificate of accreditation and runs a very well-staffed quality assurance unit. In 2015, it developed its biosafety policies and regulations and has prepared to fully implement them in 2017. In addition, the NIP and the CVL go through periodical quality audits.

However, biosecurity has not been discussed within Namibian government bodies. In addition, there is no approach toward building a comprehensive biosafety and biosecurity system. Coordination among human and animal laboratories is very weak and there remains potential to improve.

Research using pathogens is in its very early moments in Namibia. They work mostly in cooperation with national and international research institutions, and they do not usually work with dangerous pathogens.

Biosafety and biosecurity incidents in government laboratories in other countries highlight the need to make continuous efforts to develop coordinated, whole-of-government oversight and proper staff training in order to gain sufficient experience and expertise to safely work with selected agents and other dangerous pathogens. The Namibian authorities have shown concern and interest in improving legislation and regulations. Priority areas for action and new recommendations are addressing such issues as developing an integral plan, training, strengthening institutional cultures, governance, risk assessments and documentation in the laboratories handling select agents.

Recommendations for priority actions

- Establish a task force with representatives of (at least) the MoHSS, the NIP, the CVL and the environment authority to develop a needs assessment and to prepare an integral biosafety and biosecurity plan using the One Health approach. It must include legislation and regulation gaps.
- Conduct a comprehensive training needs assessment to identify gaps and start to address the capacity building for biosafety and biosecurity, linking animal and human health experts of government agencies, academia, international cooperation agencies and / or foreign governments. This should be followed by the implementation of a training program in the country.
- Organize and conduct simulation exercises addressed to test biosafety and biosecurity with the participation of all stakeholders at least once year after the training has ended.
- Develop and implement regulations for vaccination (pre-exposure prophylaxis) for laboratory personnel (Hepatitis B, HIV and other relevant diseases).
- Develop and implement laboratory licensing and pathogen control measures including requirements for physical containment and operational practices, and containment and failure reporting systems.

Indicators and scores

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

Strengths/best practices

Namibia's capacity exceeds indicator P.6.1's Score 1 in the following ways: both Namibia's NIP and CVL have in place regulations such as biosafety manuals and SOPs that are officially used at national and regional level.

- Laboratory personnel use protective clothes and equipment, but not always consistently.
- Key equipment such as biosafety cabinets are in place and maintenance is provided locally. Specimens are packed and labelled at local and regional laboratories and sent either through special or regular couriers.
- No major incidents have been reported.
- Both laboratories and health facilities have established solid and liquid waste management systems.
- There is an operational biosafety level 3 (BSL-3) laboratory in the NIP, and the BSL-3 lab in the CVL has been already built (but was not in use at the time of writing).

Areas which need strengthening and challenges

To fully meet the capacity requirements of P.6.1 and to increase Score 1, the following capacities must be strengthened:

- while there is specific legislation on biosafety addressing only genetically modified organisms, there is not yet legislation specifically addressing both biosafety and biosecurity for pathogens of human, animals and agriculture sources.
- Even though there are elements of a biosafety system, they need to be improved through cross-sector coordination and by updating and articulating regulations among the animal and human health sectors. There is a need to develop a concept, legislation and regulations that include biosecurity. There is also a need to understand the importance of incorporating medium or long-term laboratories that work with pathogens in the agricultural sector. There is no strategic national laboratory plan for biosafety and biosecurity in place.
- Although biosafety SOPs exist, a culture of biosafety has not fully been adopted that would create consistent and mandatory compliance with regulations for personnel and contractors.
- Specimens are packed and labelled at local and regional labs and there have been no major incidents. However, there is a need to review the regulations that couriers must meet to handle and ship dangerous pathogens.
- It is also necessary to develop an inventory of pathogens in both human and animal health laboratories. It is necessary to put in place regulations to protect personnel working at laboratories against laboratory-acquired infections.

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

Strengths/best practices

- Key laboratory personnel have been trained in biosafety through international workshops, and in-house training has been conducted for biosafety including in the shipping and transport of regulated biological materials, and the use of biological safety cabinets and protective clothes and equipment.
- Other personnel receive basic biosafety training according to the tests they perform.

Areas which need strengthening and challenges

- implement a needs assessment in partnership with academia and international organizations, and develop a training plan that addresses the gaps identified.
- Develop partnerships to promote the interests of academic organizations such as the University of Namibia by developing short training workshops to raise awareness, and to raise awareness among the laboratory workforce of biosafety and biosecurity best practices for safe, secure and responsible conduct.
- Simulation exercises between the NIP and the CVL on biosafety and biosecurity will help to identify gaps in capabilities and to improve collaboration mechanisms that actually work.

Immunization

Introduction

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

Target

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

Namibia level of capabilities

Namibia launched the Expanded Programme on Immunization (EPI) in 1990 as an integral part of its primary health care delivery system. The programme's goals are to: increase vaccination coverage for children and women of child bearing age (WCBA) by 80%; maintain poliomyelitis-free certification standards; accelerate elimination of measles and maternal and neonatal tetanus; and reduce morbidity and mortality due to other vaccine-preventable diseases.

The programme receives 100% government funding and is also supported by partners like WHO, the United Nations Children's Fund (UNICEF), the United Nations Population Fund (UNFPA) and Centers for Disease Control and Prevention of the United States of America (CDC) for specific national interventions to improve vaccination coverages for various antigens. It also collaborates with civil society organizations and community leaders. Immunization services are offered at no cost in all public facilities but in some private health facilities service fees are charged.

The Public and Environmental Health Act 2015 provides a legislative framework for vaccination activities in human health in the country. Vaccination activities are currently focused on children under five years old. The current immunization schedule in Namibia is as follows:

Antigen	Age at Administration
Bacillus Calmette–Guérin (BCG)	Birth
Bivalent oral poliomyelitis vaccine (bOPV)	Birth
Hepatitis B	Birth
Tetanus	6, 10, 14 weeks
Haemophilus influenza type B (Hip B)	6, 10, 14 weeks
Pertussis	6, 10, 14 weeks
Diphtheria	6, 10, 14 weeks
Pneumococcal	6, 10, 14 weeks
Rotavirus	6, 10 weeks
Measles, mumps-rubella	9, 15 weeks

Regular supplementary immunization activities (SIAs) are also undertaken (African Vaccination Week and Maternal and Child Health weeks) to reach missed and poorly immunized children. New vaccines were introduced into routine immunization in 2014, namely: Hepatitis B birth dose, pneumococcal and rotavirus. The MoHSS introduced inactivated poliomyelitis vaccine (IPV) in December 2015 and Namibia participated

in the global switch from trivalent oral poliomyelitis vaccine (tOPV) to bivalent oral poliomyelitis vaccine (bOPV) in April 2016. A second dose of measles containing vaccine (MCV2) at 15 months of age was introduced during the measles-rubella supplementary vaccination campaign in July 2016.

Coverage for most antigens in routine immunization activities has seen a steady rise over the years. As seen in the table of selected antigens below, these are sometimes complimented by mass vaccination campaigns and "mop ups" from time to time. According to the 2013 Demographic and Health Survey (DHS) report, overall, 68% of children age 12–23 months were fully vaccinated at the time of the survey, and coverage of measles was 90%.

Immunization coverage 2012–2015, %

Antigen	2012	2013	2014	2015
Penta1	90	94	92	98
Penta3	85	88	88	92
Measles	76	82	83	85

Source: WHO vaccine-preventable diseases: monitoring system. 2017 global summary. Coverage time series for Namibia (NAM). http://apps.who.int/immunization_monitoring/globalsummary/coverages?c=NAM

There were no vaccine stock-outs at the national and district levels in 2016, according to unverified reports. However, uneven distribution and poor information management regarding vaccine stocks by health facility staff has led to misinformation about vaccine availability in such health facilities.

Immunization is part of the curriculum of training for nurses and midwives in the country and the programme collaborates with training institutions in implementation and building capacity.

The vaccination of animals also receives considerable government support. The country has a strong vaccination programme against epidemic-prone diseases in animals with an annual programme against major diseases affecting livestock and domestic animals, including zoonoses such as rabies and anthrax. The programme is run by the Directorate of Veterinary Services of the MoAWF.

A programme to vaccinate cattle against foot-and-mouth disease was launched and completed in 2015. About 850,000 cattle were vaccinated in 2015. An outbreak was successfully averted and the danger was declared over in early 2016 after no cases were reported for six months. Preventive measures have been implemented.

According to figures given by the Minister of Agriculture, Water and Forestry, John Mutorwa, at the launch of the National Rabies Control Strategy in Windhoek in March 2015, about 2,595 cases of rabies were reported in the previous five years, with at least 18 people dying of the disease each year. This led to a mass rabies vaccination of domestic dogs and cats to eliminate rabies in the country. The programme is ongoing.

Vaccination has also been carried out in cattle against contagious bovine pleuropneumonia (CBPP), also known as lung sickness, due to outbreaks.

There is strong government support for both animal and human immunization / vaccination programmes across the whole country, and this has effectively averted the loss of many lives. The programmes are well-resourced by government and partners, and there is an adequate team of community volunteers on hand for mass vaccination campaigns including Health Extension Officers (human health) and livestock volunteers (animal health).

The vaccination of livestock from the neighbouring countries of Angola and Botswana took place during the response to the foot-and-mouth disease outbreak, as well as the vaccination of Angolan citizens during mass vaccination campaigns. The authorities are able to respond to outbreaks using helicopters to transport personnel, equipment and medical commodities, as well as strong social mobilization and partner involvement in all vaccination campaigns.

Recommendations for priority actions

- Strengthen collaboration between animal and human health (under the One Health approach) to prevent and respond to outbreaks. This calls for the need to put in place a mechanism for improved communication and engagement.
- Improve routine immunization coverage through increased social engagement with mothers and community leaders to increase uptake.
- Increase the motivation of community agricultural and health volunteers/extension officers.
- Strengthen mechanisms for quality monitoring of both programmes, including data gathering and sharing.

Indicators and scores

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

Strengths/best practices

- EPI and animal health vaccination programmes are significantly provided for by government.
- MoU with UNICEF for support with vaccine and related supplies procurement.
- Daily immunization provided in all public health facilities in all 35 districts.
- Regular EPI visits to outreach services in all districts.
- Availability of cold chain equipment and required vaccine and vaccine supplies in all public facilities.
- The Health Extension Programme (HEP) provides an extensive supply of volunteers throughout the country who are available for identification of missed opportunities and referrals
- SIAs including African Vaccination Week and Maternal and Child Health weeks provide opportunities to reach unvaccinated, missed and marginalized populations.
- Significant funding is available from government to support animal vaccination programmes.

Areas which need strengthening and challenges

- Collaboration with private facilities, especially in data submission, needs strengthening.
- Operational guidelines for health workers need finalizing and disseminating.
- Support supervision to lower levels requires increasing.
- A high quality, integrated and interoperable system on vaccination / immunization data is needed to improve data gathering and sharing.
- More training to upgrade the skills of current staff needs to be provided, and more staff recruited.

P.7.2 National vaccine access and delivery – Score 4

Strengths/best practices

- There are reliable vaccine supplies and distribution mechanisms supported by almost 100% government funding (for both animal and human health).

- Vaccine procurement through UNICEF ensures a sustained supply of vaccines in the country.
- An improvement plan for cold chain equipment has been made available.

Areas which need strengthening and challenges

- Legislation / regulations are needed to oblige private health care providers to submit immunization data to the government.
- Social mobilization and advocacy is required to sensitize parents and communities to the need for vaccination.
- Improved management of cold chain equipment is needed.
- Effective management of cross-border populations and travellers at PoEs is required.

DETECT

National laboratory system

Introduction

Public health laboratories provide essential services including disease and outbreak detection, emergency response, environmental monitoring and disease surveillance. State and local public health laboratories can serve as a focal point for a national system, through their core functions for human, veterinary and food safety including disease prevention, control and surveillance; integrated data management; reference and specialized testing; laboratory oversight; emergency response; public health research; training and education; and partnerships and communication.

Target

Real-time biosurveillance with a national laboratory system and effective modern point-of-care and laboratory-based diagnostics.

Namibia level of capabilities

Laboratory services for human health are run by the National Institute of Pathology (NIP), set up by an act of parliament (NIP Act 15, 1999). The NIP is one of the state-owned enterprises created to provide medical laboratory services to both public and private patients. The Directorate of Tertiary Health Care and Support Services of the department of Health and Social Welfare Policy of the MoHSS oversees and coordinates medical laboratory services in the country.

The delivery of health laboratory services in Namibia is carried out by approximately 84 clinical laboratories: 40 of these are run by the NIP and the rest are privately owned. Clinical laboratories offer routine diagnostic services to health facilities and private clinics. There is no public health reference laboratory in the country but plans are underway to upgrade some laboratories into public health reference laboratories.

The Medical Laboratory Service (MLS) is a unit in the Directorate of Tertiary Health Care and Support Services that provides oversight to clinical laboratories and the Blood Safety Programme under the remit of the MoHSS. The unit is directly responsible for overseeing, coordinating and providing training for laboratory quality systems in both public and private health laboratories in the country. It has also been tasked to provide technical assistance and leadership in assuring the integration of quality systems and the country-wide laboratory network, including coordinating external quality assessment schemes.

There are also laboratory services offered by other sectors, including the MoAWF which runs the Central Veterinary Laboratory offering diagnostics in the veterinary sector for rabies and anthrax, and the Ministry of Industrialization, Trade and Small and Medium-sized Enterprises Development, of which the National Standards Institution of Namibia is a part. This unit has chemical, microbiological and metrological sections for testing the quality of products and calibrating equipment (mostly non-medical and medical equipment) and is supported mainly by the European Union and other international bodies.

Essential diagnostic capacities in the country's laboratories include:

- in public health – Ebola virus disease (EVD), yellow fever, measles and / or rubella.
- in clinical areas – TB, HIV (including viral load (VL) and CD4+ cell count), malaria, and other microscopy.

- in non-medical products and equipment – microbiological, chemical and metrological.
- in agricultural products – animal products / food testing.
- in robust and/or rapid diagnostic techniques for human health – molecular diagnostics (polymerase chain reaction), EVD, HIV, TB:
 - Rapid molecular tests – GeneXpert (integrated HIV-VL, TB and EVD testing);
 - Other rapid diagnostic tests (RDTs) – HIV, malaria, syphilis.

The country has a specimen referral system in place for testing IDSR priority pathogens in laboratories in the country, and for testing for poliomyelitis (polio), Lassa fever, Zika, and rabies outside the country in WHO certified laboratories.

The country has invested a lot into laboratory services for both human and animal health but more needs to be done if the system is to meet future challenges, especially in animal health. Planning, management, supervision and monitoring of services across the country need to be enhanced. This calls for strengthening activity at the national level to provide these roles.

Recommendations for priority actions

- Expand testing capacity for IDSR priority diseases.
- Improve laboratory data management and reporting, and develop a laboratory information system (LIS).
- Strengthen the laboratory management quality system across the country.
- Enhance and expand laboratory infrastructures.

Indicators and scores

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

Strengths/best practices

- The country has well-developed documents including the National Standard Laboratory Guidelines 2015 (draft), the National Public Health Laboratory Policy with Implementation Plan 2013, the Point of Care Testing Guidelines 2015 (draft) and national HIV / AIDS testing guidelines.
- There is effective coordination among NIP laboratories and stakeholders with participation in external quality control, participation in measles-rubella, yellow fever and TB programmes, and external HIV quality control according to the schedule.
- Another best practice is the expansion of testing capacity for IDSR priority diseases such as cholera, and others.
- Namibia has a first-class national veterinary laboratory, which is well-staffed and provides most international standard tests including toxicology. There are quality assurance processes in place.

Areas which need strengthening and challenges

- The management of data from the laboratory, including analysis and sharing for decision making, needs improvement.
- Coordination, communication and collaboration among sectors (human, animal, environment), under the One Health approach, needs to be strengthened.
- Animal and human laboratories need more and better-trained staff.
- The infrastructure and testing facilities for public health reference laboratory services – for both human

and animal health – needs to be enhanced.

- An interoperable, interconnected and robust specimen referral system needs setting up.
- More resources to the medical laboratory science unit/agency need to be provided to improve its oversight responsibility.
- Improved collaboration between animal and human laboratory systems (and the environmental protection agency) through regular meetings, complimentary and supportive activities, sharing of results, etc., is required.
- Testing capacity for core pathogens and IDSR priority diseases need to be improved and expanded.
- Human resources management and capacity for laboratory systems, especially for human health laboratories, needs improvement.
- Laboratory aids and assistants need upgrading.
- Poor and unstandardized methods require standardization and training.
- Measures need to be put in place to improve MoHSS laboratory equipment maintenance and repair.

D.1.2 Specimen referral and transport system – Score 4

Strengths/best practices

- The NIP transport network is able to transport specimens, and is complimented by a courier and back-up system for good turnaround time.
- The veterinary laboratory system also has a good transport system for transporting samples from lower levels to national facilities.

Areas which need strengthening and challenges

- The linkages and twinning between human, environmental and animal health sector laboratories and supporting transport of laboratory samples and specimens need strengthening.
- Laboratory data management and reporting needs improvement.

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

Strengths/best practices

- All district hospitals have laboratories which performs basic chemistry bacteriology and haematology.

Areas which need strengthening and challenges

- The Laboratory Quality Management System needs strengthening.

D.1.4 Laboratory quality system – Score 4

Strengths/best practices

- The veterinary laboratory service has strong quality monitoring systems that are adequately supported.

Areas which need strengthening and challenges

- Training in quality monitoring and an increase in support for quality monitoring processes needs strengthening.
- The timely undertaking of quality assessments and sharing findings with all stakeholders is required.

Real-time surveillance

Introduction

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

Target

Strengthened foundational indicator, and event-based surveillance systems that are able to detect events of significance for public health, animal health and health security; improved communication and collaboration across sectors and between 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.

Namibia level of capabilities

Namibia has in place an indicator-based and syndrome surveillance system which also includes sentinel surveillance. This forms part of the public health surveillance system and has the capacity to detect, confirm and respond to communicable and non-communicable disease threats. In animal health, there is also an event-based surveillance component which involves farmers and veterinary field officers in reporting events related to animal health.

The country has a national IDSR guideline (2011) which guides implementation of IDSR from the national level to primary health care centres. Structures and IDSR tools (hard and soft copies) are in place, including the designation of surveillance and health information focal persons at regional and district levels.

Laboratory results are web-based, and shared between national and regional levels through the NIP, which facilitates the timely sharing of results. A vaccine preventable diseases (VPD) surveillance system is well established and functional, especially for acute flaccid paralysis (AFP) and measles. The VPD surveillance system operates within the IDSR framework with designated surveillance focal persons at all levels. Syndromic surveillance is available for AFP, acute haemorrhagic fever, acute diarrhoea with dehydration, and jaundice with fever.

Recommendations for priority actions

- The establishment and implementation of event-based surveillance as outlined in the Namibia IDSR guideline (2011) to complement indicator-based surveillance.
- The establishment of interoperable, interconnected surveillance systems for both human and animal health, capable of sharing data with different stakeholders for a timely response.

Indicators and scores

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

Strengths/best practices

- Health staff at regional and district levels are trained through IDSR training, VPD training and FELTP (Field Epidemiology and Laboratory Training Program) short course training programmes.

- The National IDSR Guidelines (2010), which guides implementation of IDSR from the national level to primary health care centres, is in place and provides guidance for the establishment of event-based surveillance.
- There are also community extension officers and veterinary field officers in place who work on surveillance activities at community level and report to district hospitals.

Areas which need strengthening and challenges

- Event-based surveillance needs strengthening (Namibia's IDSR Guidelines have stipulated other sources of public health information which includes the use of informal sources such as the use of a rumour log book, community members and media but its implementation is not yet practical).
- The human health and animal health sectors have strong surveillance systems but these need to be integrated; each sector currently works independently.
- While the National IDSR Guidelines were developed in 2011 and distributed to health facilities and designated surveillance officers at regional and district levels, health personnel at lower-level facilities have not been oriented toward them, limiting its full implementation at lower levels. This includes limited data analysis capacity.
- There is limited capacity in the interoperability of human and animal health, and laboratory, components, and other surveillance systems, in the country.
- Namibia has limited capacity in the implementation of surveillance activities at PoE (a plan was in place and implemented only during the EVD outbreak): the strengthening of event- and community-based surveillance, as stipulated in the ISDR Guidelines, is required.
- The linkage of community extension workers with primary health care centres is required since they are closest to the community (as distinct from the current situation where they are obliged to report to district hospitals).
- A human resource shortage requires attention. For example, the Oshikango border lacks a port officer because the district hospital (Engela District Hospital) lacks staff to deploy at the border. Also officers who serve as surveillance officers at lower levels have multiple other responsibilities and have less time to perform surveillance activities.

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

Strengths/best practices

- Interconnectivity of laboratory surveillance system between national and regional level.
- Presence of Health Management Information System for human and animal health which can be interconnected.

Areas which need strengthening and challenges

- Currently the existing surveillance system both from the human and animal sectors are independent. However, plans are in place to establish the interoperability and interconnectivity of the surveillance system.
- Intersectoral coordination is needed to facilitate interconnectivity of the surveillance system.
- Strengthened interoperability between IDSR and other surveillance systems is required.
- Some facilities at district level and lower levels do not practice data analysis either due to lack of capacity or a shortage of staff.

D.2.3 Analysis of surveillance data – Score 3

Strengths/best practices

- Namibia has a system in place for data collection, and some lower-level facilities have basic data analysis capacity.
- Staff capacity building for data management is provided as part of a FETP, after which trainees disseminate skills to lower levels.

Areas which need strengthening and challenges

- Capacity building to lower-level staff for basic data management (on-the-job training / mentorship and supervision) is required.
- The fast-track establishment of a surveillance bulletin to create a demand for data collection, analysis and its interpretation from all levels, to be used in its production (this was planned to start in 2017).

D.2.4 Syndromic surveillance systems – Score 4

Strengths/best practices

- Syndromic surveillance is available for AFP, acute haemorrhagic fever, acute diarrhoea with dehydration, and jaundice with fever (yellow fever).
- Syndromic surveillance is integrated within the IDSR.

Areas which need strengthening and challenges

- Syndromic surveillance needs to be strengthened at PoEs as currently no such system is in place (although a temporary system was set up during the West Africa Ebola outbreak).
- Despite a current yellow fever outbreak in the neighbouring country of Angola, no jaundice-with-fever surveillance has been implemented at border points.

Reporting

Introduction

Health threats at the human–animal–ecosystem interface have increased over the past decades, as pathogens continue to evolve and adapt to new hosts and environments, imposing a burden on human and animal health systems. Collaborative multidisciplinary reporting on the health of humans, animals and ecosystems reduces the risk of diseases at the interfaces between them.

Target

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

Namibia level of capabilities

The Epidemiology Division within the MoHSS is designated as the national authority responsible for decision making and initial risk assessment with respect to PHEICs and reporting. Information on PHEICs is handled by the Epidemiology Division and the chairperson of the NHMC of the MoHSS with subsequent notification to WHO through official documents. The MoAWF through the Directorate of Veterinary services report to OIE on regular basis while food safety components are being reported to FAO through the Epidemiology Division. However, there is a lack of regular communication and integrated reporting between the MoAWF and the MoHSS.

The National IHR Focal Point in the country was updated in May 2016 to improve the co-ordination among various sectors especially in terms of reporting. The focal person for surveillance, who is from the Epidemiology Division is a member of the National Focal Point. The Epidemiology Division provides information on zoonotic diseases to the Veterinary Services Directorate which is in the MoAWF on an annual as well as an ad hoc basis. For animal health, the State Veterinarian reports to the Chief Veterinarian and to the region. Based on the results, cases will be investigated and a press release is prepared that is sent to the minister's cabinet for publication. OIE-reportable diseases are sent to central office within 24 hours and cases can be reported based on clinical symptoms. There is community participation in reporting when there is livestock movement. The timeliness of reports for animal health is around 90%, but completeness is lower than that.

Recommendations for priority actions

- Strengthen early reporting to WHO, OIE and FAO, and from community level to national level, through the use of simulations of epidemics and exercises.
- Conduct post-action reviews to analyse what happened, why it happened, and how it can be done better by all the stakeholders.
- Capacitate the National IHR Focal Point with the authority of reporting to WHO to ensure early reporting and therefore rapid response.
- Review and improve the design of the current disease reporting system using information and communication technologies to improve timeliness, completeness, reliability and to reduce the workload for end users, as well as facilitate prompt response.
- Integrate reporting between ministries by facilitating interfaces among systems already in place, and using common communication channels.

Indicators and scores

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

In order to meet the D.3.1 capacity level for Score 3, Namibia needs to strengthen reporting to WHO (within 24 hours) by conducting exercises or demonstration through real-time events.

Strengths/best practices

- The MoAWF has a web-based disease surveillance system which MoHSS has access to. This can maximize efforts among all stakeholders and ensure timely and accurate disease reporting.
- Once event-based surveillance has been implemented in the country, information received should be integrated into the reporting system.
- The country has designated offices which report to various bodies (for example WHO, FAO, OIE) on a regular and ad hoc basis.

Areas which need strengthening and challenges

- Different ministries report via different channels and therefore integration is a challenge.
- Although the capacity of the Epidemiology Division to receive and share information is present, this does not occur in a timely manner (within 24 hours).
- The different methods of reporting need to be harmonized by formulating standard methods and systems for data collection and reporting to prevent inconsistencies in the shared information.
- Reporting to the various sectors needs to be formalized by using standard reporting forms.
- There is a lack of mechanisms for the exchange of information between the National IHR Focal Point and OIE contact points which can lead to delays in reporting to the external bodies because reporting is done independently.
- The National IHR Focal Point and OIE contact points / persons need to be adequately trained to understand their roles.

D.3.2 Reporting network and protocols in country – Score 3

Strengths/best practices

- A NHEPRP is in place which includes all key responsibilities and SOPs for reporting.
- The country has conducted informal consultations with the WHO Country Office on various aspects as per Article 8 of IHR.
- Although not timely, the country has adopted Annex 2 of IHR into the IDSR and this is conducted daily in terms of notification of a PHEIC.

Areas which need strengthening and challenges

- There is the need to strengthen the national IHR focal point in order to coordinate PHEIC reporting in the country.
- Simulation exercises have not been conducted to test the PHEIC system.
- Furthermore, there is a need for implementation, reinforcement and effective decision making for the NHEPRP.
- The country needs to demonstrate timely reporting of a potential PHEIC to WHO and OIE for relevant zoonotic diseases in alignment with national and international standards.

Workforce development

Introduction

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

Target

State Parties 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 to include physicians, veterinarians, biostatisticians, laboratory scientists, farming/livestock professionals, with an optimal target of one trained field epidemiologist (or equivalent) per 200 000 population, who can systematically cooperate to meet relevant IHR and Performance of Veterinary Services core competencies.

Namibia level of capabilities

The overall ratio of health care workers per head in Namibia is above the WHO benchmark of 2.5 per 1,000 people, at 3.0. The ratio of doctors to members of the population is 1:2,950, nurses (1:704), pharmacists (1:10,039), social workers (1:1,351), and environmental health practitioners (1:28,562). There are however serious imbalances in sparsely populated areas of Namibia, with a high concentration of health workers in urban areas and in the private sector, especially in private clinics. Overall, 27% of posts in the public sector are vacant, including 36% for doctors, 21% for registered nurses, and 42 % for social workers. The country has only recently started training its own physicians, and depends predominantly on the recruitment of expatriate doctors. Since 2010, a focus on training physicians in-country appears to have eclipsed the training of public health professionals, which is only beginning at university level.

Registered nurses, social workers and radiographers (and veterinarians) are trained at the University of Namibia (UNAM). There is a training program for environmental health practitioners, laboratorians, and emergency medical technicians at the Namibia University of Science and Technology (NUST). Nurses and environmental health assistants are trained at four health training centres.

While the number of health staff overall is arguably sufficient, the number of public health professionals is clearly inadequate. In the MoHSS organigram, there are 117 posts for public health professionals. At the time of the JEE, only 13 of these posts were filled. None of these posts are at regional or local levels.

Namibia began a FELTP in 2014. At time of writing, seven individuals had completed the first cohort, six remained in the second cohort and six had started the third cohort. This is providing key staffing for the public health system but is subject to the same limitations as other health fields, with an imbalance toward the country's few high-density urban areas and with a great risk of attrition of staff to other countries.

The MoHSS, in conjunction with the CDC Country Office, provides short courses on the FELTP and others for public health staff, and 137 people have been trained through these short courses.

The National Planning Commission developed an overall human resource plan for 2007–2013 which guides the country, while the MoHSS has a document entitled "Five Year Human Resource Strategy" for health. This document, however, provides no specific guidance on the training, employment, career development or tasks for public health staff.

The country's FELTP provides essential core training for the nation and connects Namibians to training opportunities and research mentoring internationally. It is not clear if there will be an FELTP in the future as the three-year programme is currently funded entirely by external resources. It also is not clear if there is any strategy to combine the resources of the FELTP with those of the UNAM for professional training and strategy development in the future.

Recommendations for priority actions

- Strongly advocate for continued support for the FELTP to the central government and international organizations.
- Increase the number of students recruited for training as laboratorians, environmental health professionals and epidemiologists.
- Develop workforce strategy specific to public health fields in collaboration with the UNAM and the MoHSS to increase the retention of staff, create a career ladder, and move people to the places in the country where they are most needed.
- Combine the resources of staff and graduates of the FELTP with those of UNAM to maximize expertise for training, research, and mentoring in public health.
- Create positions for epidemiologists and other public health staff in the organigram and salary plans of the government.
- Create consensus for the development of a public health institute as an organ of the MoHSS that is intimately related to public health training programmes in the country.

Indicators and scores

D.4.1 Human resources are available to implement IHR core capacity requirements – Score 4 <

Strengths/best practices

- There is a strong recognition of the need to further train and organize public health staff, particularly for posts at the regional and local levels. The country has higher-level institutions available for training key professionals in public health.
- There is an in-service training programme in place in the country for animal and human health personnel, and for laboratory workers.

Areas which need strengthening and challenges

- While some staff exist, they are not present in sufficient numbers or with sufficient skill to meet the country's needs, in particular for doctors, nurses and social workers in rural areas.
- Clear plans should be in place to integrate graduates with the system to make a difference, paying particular attention to career path development.
- In areas where the country lacks capacity in human resources, MoUs with foreign academic institutions are key, and need to be built upon as part of a substantive strategy for creating the human resources necessary for improved public health services
- Employers (both government and private) need to be integrated into strategies and plans for employment, career ladders, salary support, and locating staff in the areas where they are most needed.
- The FELTP is in severe need of a sustainability plan.

D.4.2 Field epidemiology training programme or other applied epidemiology training programme in place – Score 2 <

Strengths/best practices

- The country at present has an FELTP which includes laboratory, human and animal health training.
- There is political support in the country for FELTP at all levels and good collaboration with international partners.

Areas which need strengthening and challenges

- The creation of a financial plan to assure the continuity of the country's FELTP is required.

D.4.3 Workforce strategy – Score 2

Strengths/best practices

- A workforce strategy exists and is set in coordination with the national planning commission.

Areas which need strengthening and challenges

- Plans for a national public health institute need to move forward with a strategy for its organization, finance, and the passage of legislation for its establishment.
- The "Five Year Human Resources Strategy" promulgated by the MoHSS needs to be enhanced to include the training and employment of public health staff, including for the training of nurses and an animal health care cadre.
- Sustainable funding for FELTP must be secured.

RESPOND

Preparedness

Introduction

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

Target

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

Namibia level of capabilities

Namibia is suffering great economic hardship due to floods, drought, and forest and grassland fires, as well as disease outbreaks including those of cholera and malaria. These hazards and their associated consequences threaten the health security of the country and have significant impacts on communities, infrastructure and the environment. Changing weather conditions – worsened by climate change – have contributed to an increased number of natural disasters during recent years. The impact of natural disasters on Namibian society is currently being showcased by the three-year long drought which has had significant socio-economic consequences on affected communities and the government. It has also dramatically worsened the effects of a recent malaria outbreak, which in early 2016 put the shift from malaria control to malaria elimination at risk. This would have been especially painful since the Namibian government has undertaken successful and expensive interventions aimed at malaria elimination for more than a decade.

The Disaster Risk Management Act (2012), elaborated by the prime minister's office, set up the National Disaster Risk Management Committee (DRMC) as the highest multisectoral coordination body in Namibia. It provides advice on matters concerning disaster risk management and is in charge of coordinating, planning, preparing and responding to national public health emergencies. In addition, there is also a NHEMC under the MoHSS. Its main function is to coordinate the preparedness and responses to public health emergencies. There are similar corresponding committees at regional and district levels. However, most of these committees do not have regular meeting schedules. The emergency response is to be provided at the local level according to national guidelines and other specific plans. At the national level, additional technical and logistical support services are provided if necessary by the DRMC. Recently Namibia has developed a NHEPRP. However, the NHEPRP is yet to be fully implemented and it lacks a comprehensive, One Health approach. It does not include hazards like chemical, nuclear and radiologic events. It has also been noted that there is still a need for public health emergency awareness in government and society, and the lack of such awareness poses a risk and leads to increased impact when foreseeable public health

emergency events occur. The country has a strong laboratory facility and management system that supports early detection of disease outbreaks.

Big challenges to the implementation of planned activities in a country currently facing natural disasters such as droughts include inadequate financing, limited or misallocated human resources and limited technical expertise in areas such as chemical, radiological, nuclear threats. Funds for emergency responses are usually more accessible than for actual preparedness. The need for strong multisectoral collaboration among the office of the prime minister, the MoHSS, the MoAWF, the Ministry of Environment and Tourism (MoET), the Ministry of Home Affairs and Immigration, (MoHAI) and other relevant ministries and agencies is another challenge that need to be addressed.

Recommendations for priority actions

- The NHEPRP should be updated into a multi-hazard plan, to include biological, chemical and radiological hazards. There should be a One Health approach and whole-society involvement with multisectoral and multidisciplinary participation. Additionally, an identifiable allocated budget should be included for every government organization that participates in such a plan, that is the plan should receive full funding to be implemented. External support, including deployment of technical expertise, will be needed and should be strongly considered.
- Key to the development of a multi-hazard preparedness and response plan is the need for the country to undertake risk profiling, and undertake, based on the risk profile included in the NHEPRP, an assessment to map out all the potential hazards in the country.
- A map that includes all hazards possibly threatening Namibia's health security must be prepared, updating existing reports, documents and studies done in different sectors. It must be made available for all stakeholders at the local, regional, national and international levels.
- National or regional simulation exercises / drills to must be organized and implemented in order to identify gaps, raise awareness and improve societal and governmental preparation for public health emergencies. These drills should relate to the types of hazard that are prevalent in the country.

Indicators and scores

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

Namibia's capacity exceeds indicator R.1.1's score of 2 in the following ways: There are legislative and regulatory mechanisms in place to activate the emergency response at all levels, but the actual mechanisms have not been tested yet.

Strengths/best practices

- The NHEPRP has been developed but has only been partially implemented.
- After the Ebola outbreak in West Africa, the Namibian government first developed a contingency plan in 2014 and then, only in 2015, an Ebola Preparedness and Response Plan. The latter has not yet been tested through simulation exercises.
- In 2015, Namibia conducted an emergency preparedness response assessment and subsequently developed the NHEPRP with multisectoral participation. The resulting document identified the activities and funding needed, but no appropriate budget allocations were made to it into the official national budget.
- There are sufficient human resources with training to respond to public health threats that can be mobilized.

Areas which need strengthening and challenges

To fully meet the capacity requirements of R.1.1, a multi-hazard national public health emergency preparedness and response plan has been developed and implemented (Score 2), but the following capacities must be strengthened:

- Multisectoral coordination needs to be strengthened using current legislation and regulation; the review and update of the NHEPRP could be an opportunity.
- The NHEPRP needs to adopt the One Health approach and include all hazards (biological, chemical, radiological, and nuclear).
- The participation of sectors such as agriculture, defence, finance, tourism, trade, communication, home affairs and education is necessary to develop a real multisectorial plan.
- The plan should have a budget and this must be provided with the necessary funds to ensure identified gaps are filled and the preparedness is optimum for any future public health emergency.

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

Namibia's capacity exceeds indicator R.1.2., with Score 1, in the following ways: There are several public health risks and hazards that have already been identified by past experiences, and different agencies and studies, but there is no consolidated public health risks map including an all-hazards map as such.

Strengths/best practices

- The Namibian authorities have shown political will to identify the gaps and address the recommendations of the JEE accordingly.
- Namibia does not yet have a public health and resources map.
- The country has identified priority diseases that pose a public health threat, especially zoonotic diseases.
- Some hazards are listed in the NHEPRP but there is a need for a more comprehensive list including chemical, nuclear and radiological events.

Areas which need strengthening and challenges

- Map all public health risks and available resources by updating and consolidating different reports and documents, and producing a compiled map of public health risks and resources at the national level (such a map must include logistics, experts, finance, and other requirements needed to comply with IHR. It also must include a plan for management and national stockpiling capabilities).
- Demonstrate through drills or simulation exercises (or during real events) the use of such risk mapping documents.

Emergency response operations

Introduction

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

Target

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

Namibia level of capabilities

The country does not have a physical emergency operations centre (EOC) at present. When a disaster occurs practice, habit, and informal mechanisms are used to activate an emergency response. The disaster risk management unit in the prime minister's office has an EOC director and is capable of providing intersectoral coordination and response to national public health emergencies. The NHEMC in the MoHSS is designated to coordinate the preparedness and response to health-related emergencies at all levels in the country. Various stakeholders have seconded staff members to the national EOC in response to fires, floods and drought in the past, and in preparation for a possible Ebola outbreak. There is a corresponding structure to the national EOC in each region. In seven of those regions, emergency procedures have been tested for some time.

Recommendations for priority actions

- Establish a permanent national EOC, with formalized standard plans and response programmes in place.
- Provide ongoing training due to staff turnover, as well as coordinator with stakeholders not present in the EOC.
- Prepare for emergencies with which the country is not yet familiar, including disease outbreaks, mass-casualty events such as plane crashes and chemical or radiologic disasters through simulations.

Indicators and scores

R.2.1 Capacity to activate emergency operations – Score 1 <

Strengths/best practices

- There are informal mechanisms to respond to emergencies that occur repeatedly in the country.

Areas which need strengthening and challenges

- The establishment of SOPs and guidelines for emergency response activation is required.
- SOPs for a variety of possible events need to be created.

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

Strengths/best practices

- Namibia recognizes the need to create a functional national EOC.
- There are informal mechanisms to respond to emergencies that occur repeatedly in the country.

Areas which need strengthening and challenges

- A physical structure to serve as an EOC needs to be created.
- The knowledge and response capacity of the system requires improvement through practice.

R.2.3 Emergency operations programme – Score 1

Strengths/best practices

- Since it gained independence in 1990, Namibia has experienced epidemics of cholera, anthrax, measles, H1N1 (2009), foot-and-mouth disease, Crimean-Congo haemorrhagic fever (CCHF), meningococcal polio, Rift Valley fever (RVF) and dengue fever. All of these epidemics were actively managed, developing the capability of the Namibian response system.

Areas which need strengthening and challenges

- SOPs for a variety of possible events need to be created.
- The knowledge and response capacity of the system requires improvement through practice.

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

Strengths/best practices

- The country has adopted the IDSR system to strengthen the surveillance system.
- The country developed general case management guidelines and a booklet on priority Diseases Standard Case Definitions in 2013.

Areas which need strengthening and challenges

- Case management procedures for specific IHR hazards have not yet been developed, practiced, or implemented.
- Case management guidelines for a variety of possible events need to be created.

Linking public health and security authorities

Introduction

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

Target

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

Namibia level of capabilities

Namibia has various law enforcement authorities. Stakeholders related to linking public health and security were not identified as such to present their plans and response capacities to the JEE team. Points of contact from these sectors were not present, making it impossible for the team to assess the current situation. However, several ministries and agencies have established MoUs with the security agencies. The security apparatus is often used in public health emergencies and disasters but under local arrangements between the executives of the various agencies.

Recommendations for priority actions

- Establish legal agreements (MoUs, acts of parliament) and SOPs for cooperation between law enforcement authorities and public health and animal health authorities.
- Share information between relevant authorities and conduct joint coordinated exercises and simulations.
- Conduct risk analysis of the potential release of pathogens and / or other hazardous materials.

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 1

Strengths/best practices

- The MoAWF has an MoU with the security sector for cooperation in tackling animal disease related emergencies. Other relevant information was not provided during JEE assessment.

Areas which need strengthening and challenges

- Coordination, collaboration and cooperation between relevant authorities needs to be strengthened.
- A risk analysis needs to be undertaken to identify the type of risks where linkages with security authorities may be necessary.
- Ad hoc activities need to be formalized and systematized.

Medical countermeasures and personnel deployment

Introduction

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

Target

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

Namibia level of capabilities

Namibia has limited capacity for medical countermeasures (MCM) and there is no emergency medical stockpile. There are no formalized plans or procedures with customs or regulatory authorities to facilitate the rapid importation and use of MCM during an emergency. Despite the lack of formalized plans or procedures, the country has some experience with importing material during emergencies.

During a site visit to the central medical stores, it appeared that stocks were not well organized and there was constant movement of stock from one place in the store to another. The tracking system of medicines was manual and tracking of expired or delivered medicines could take a long time. The country was not prepared for outbreaks and did not have additional stockpiles for epidemic preparedness. This was a problem because it could take longer than two weeks to receive stock of vaccines from outside the country.

During a cholera outbreak in Opuwo, Kunene Region, in 2014, 40 cholera beds were received from Angola through WHO. Namibia has also contributed materials and other required resources to other countries. This is either done through the Ministry of International Relations and Corporation or different consular / embassy offices. Usually WHO will facilitate the deployment process, the Ministry of International Relations and Corporation will mediate the communication between countries and the office of the prime minister is in charge with coordination between other ministries. Namibia currently does not meet any of the capacity indicators and strong leadership is needed for the country to meet the requirements.

Recommendations for priority actions

- Develop a national plan for deploying medical countermeasures, as well as a personnel deployment plan.
- Develop international or multilateral agreements between countries and ministries for receiving and sending personnel and equipment to manage emergencies.
- Conduct exercises and simulations once plans have been drafted.

Indicators and scores

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

Strengths/best practices

The country has received support from, and given support to, other countries with required logistical matters, however no formal system is in place.

Areas which need strengthening and challenges

- Although the country has provided international assistance, no systems are in place.
- To meet the capacity requirements of indicator R.4.1 and obtain Score 2, Namibia needs to draft a national MCM plan.
- Furthermore, exercises and simulations will be required to demonstrate the sending and receiving of MCM during a public health emergency.
- A budget needs to be put in place for stockpiles and rapid deployment of MCM and non-medical commodities.
- SOPs need to be put in place for the sending and receiving of MCM and non-medical commodities from outside of Namibia.
- Roles and responsibilities for coordinating activities among the different stakeholders in public health emergency response need to be identified.

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

Strengths/best practices

- Namibia is a member of the African Field Epidemiology Network (AFENET) and the Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET) which helps facilitate rapid exchange of personnel in public health emergencies.

Areas which need strengthening and challenges

- Although Namibia is a member of AFENET and TEPHINET, the country has limited personnel to facilitate efficient deployment and these personnel need further evaluation by competency tier.
- There are no legal or regulatory processes and logistical plans for rapid cross-border deployment and receipt of public health and medical personnel during emergencies.
- There is no national plan nor SOPs for deployment of health personnel during an emergency.
- In order to meet the capacity requirements (once a national deployment plan has been drafted), Namibia needs to hold exercises and simulations that demonstrate decision making and protocol steps for sending or receiving health personnel from other countries during a public health emergency.

Risk communication

Introduction

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

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

Target

State Parties to have a risk communication capacity, which includes multilevel and multifaceted real-time exchange of information, advice and opinion between experts and officials or people who face a threat or hazard to their survival, health or economic or social well-being (so that they can take informed decisions to mitigate the effects (of the threat or hazard) and take protective and preventive action). It consists 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.

Namibia level of capabilities

A variety of risk communication strategies is deployed in Namibia by multidisciplinary departments, with engagement by multiple stakeholders and ministries. While overall planning is limited, there are risk communication systems operating at all levels, from national to village, including cascading activities. Public communication, targeting a variety of audiences (the general public, the media, care providers and affected communities) is undertaken at all levels, although often in an ad hoc, rather proactive, way.

There are good examples of risk communications reaching key audiences and using a variety of media such as radio, newspapers, press conferences, information materials at point-of-care facilities etc. However, there are few guidelines, protocols or SOPs in place to direct, standardize or evaluate these activities.

A community-level engagement system is semi-formed with mapping of existing processes, programmes, partners and stakeholders. Social mobilization, behaviour-change communication and community engagement are included in the national risk communication strategy in the context of health emergencies. Some key stakeholders in this domain are identified at national and intermediate (provincial / regional) level.

Recommendations for priority actions

- Strengthen coordination and stakeholder participation in risk communication, including in development of plans and implementation of interventions.
- Review and develop multi-hazard risk communication strategies.
- Build strong working relationships with all relevant sectors.

Indicators and scores

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

Strengths/best practices

- There are good informal networks and relationships among relevant communication stakeholders in both the animal and human health sectors.

Areas which need strengthening and challenges

- While a central communication point for handling public health threats exists, overall multi-sectoral planning, including practical guidelines and SOPs, remains deficient.
- There is a high dependence on informal communication channels among key ministry officials and stakeholders.
- There are inadequate risk communications funding and resources (both financial and human), often resulting in low levels of motivation and participation in preparedness activities.

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

Strengths/best practices

- Collaboration between the UN, non-governmental organizations, and key ministries at national and regional levels has been demonstrated.

Areas which need strengthening and challenges

- An overall coordinated multisectoral risk communication strategy, including after-action planning and feedback for key stakeholders, is required.
- Inadequate risk communications funding and resources (both financial and human) needs to be addressed to increase motivation and participation in preparedness activities.

R.5.3 Public communication – Score 3

Namibia has achieved all attributes at Level 2 (limited capacity), and, in addition, has proactive public outreach using a mix of platforms (newspapers, radio, TV, social media, web) as appropriate according to national and local preferences and the use of locally relevant technologies for public communications (mobile phones, etc.) to disseminate material in relevant national and local languages and in ways otherwise understandable to the population.

Strengths/best practices

- Namibia uses a wide variety of communications platforms such as radio, social media, press, TV, and Information, Education and Communication (IEC) materials and meetings to reach the public with its messaging.

Areas which need strengthening and challenges

- The use of “push technology” as well as the more strategic use of social media, as well as traditional media, would be beneficial.

- Messages are not always delivered in a timely way, and campaigns tend to be reactive rather than proactive.

R.5.4 Communication engagement with affected communities – Score 2

Strengths/best practices

- IEC units are designated at multiple levels of the health care system, and tailor information for targeted audiences.
- Samples of language-appropriate materials and information for low-literacy populations are well disseminated and visible.

Areas which need strengthening and challenges

- Planning and guidance at the national level is needed to ensure that the appropriate medium is used for key populations because certain communication channels that do not reach at-risk/targeted communities during outbreaks have been used inappropriately in the past (for example TV in areas with less coverage).
- Field testing of communication materials targeting affected communities, solicitation of feedback, and evaluation of disseminated materials and messages to ensure efficacy and appropriateness should be made routine.

R.5.5 Dynamic listening and rumour management – Score 2

Strengths/best practices

- Rumour management was put to the test during the 2014–2015 Ebola outbreak in West Africa. Peripheral care units and their health care personnel addressed rumours directly when they were informed by community networks.

Areas which need strengthening and challenges

- There is no formal designated unit, plans or procedures for rumour management.
- Training and support is lacking, particularly at the district and community levels, to enable a more proactively and dynamic engagement with the community.
- Practical guidance is needed to assist health personnel – particularly point-of-care staff – in addressing circulating erroneous (and sometimes harmful) information.

OTHER

Points of entry

Introduction

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

Target

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

Namibia level of capabilities

Namibia has 14 administrative regions. Two of these 14 regions have international ports, nine have formal ground crossings and three have international airports. At most of these PoEs there are several authorities/sectors including some combination of customs, police, agricultural, and immigration personnel. Only at the international airports and the seaport at Walvis Bay is there any routine presence of public health staff.

The country has a well-developed National Port Health Strategy for Walvis Bay, the country’s only deep-water port and thus a key strategic site for the export of agricultural goods and for tourism. The country also has SOPs for PoEs overall, but these did not appear to be being implemented during team visits to border posts and international airports.

Although the airports, sea ports and ground crossings have been identified for development, at present only one point of entry – Walvis Bay – has been officially designated for compliance with IHR regulations. The surveillance structures at other PoEs are inadequate. There are no facilities for isolation or quarantine and few trained personnel at PoEs.

A system is in place for referral and transfer of ill travellers to appropriate medical facilities, but there are no isolation facilities at PoEs or infection control capabilities among ambulance services. While there are thermal scanners at major PoEs, these did not appear to be used routinely or effectively at Hosea International Airport or at the Oshikango ground crossing. Compliance was better at Walvis Bay airport.

Recommendations for priority actions

- Existing air PoEs need to be reviewed to build IHR core capacities, including detection, isolation, and patient transport.
- Build models for developing IHR plans at ground PoEs by using the existing excellent Port Health Services system at Walvis Bay.
- Identify major potential hazards to prioritize the development of the most important control measure at air and ground PoEs.

Indicators and scores

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

Strengths/best practices

- PoEs have been identified and governmental authorities are present at most of them
- Inspections of conveyances are conducted by port health officers (as per IHR, 2005 requirements and the national regulatory framework as part of the National Port Health Strategy).
- Eight PoEs in the country have some port health services and three major PoEs have thermal scanners for surveillance.
- There are mechanisms in place for referral and transfer of ill travellers to medical health facilities.

Areas which need strengthening and challenges

- A lack of health personnel at some PoEs needs to be addressed by adequate training and facilities.
- A lack of quarantine facilities at the country's major international airport needs to be addressed.
- Adequate procedures for isolation and patient transport need to be put in place.

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

Strengths/best practices

- The 2014–2015 Ebola outbreak in West Africa encouraged Namibia to take PoE health protection more seriously and the country wishes to upgrade its facilities, training, and staffing.
- A Port Health Strategy was established in 2016.

Areas which need strengthening and challenges

- Create or strengthen intersectoral collaboration with all stakeholders involved in public health responses at all major PoEs.
- Implement the Port Health Strategy and SOPs at international airports and established ground crossings
- Train and supervise implementation of screening where staff are currently in place at PoEs

Chemical events

Introduction

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

Target

State Parties to 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.

Namibia level of capabilities

Namibia has an existing system for monitoring chemical plants on its territory. There is a plan for monitoring and testing of a variety of materials. Chemical safety monitoring belongs to the MoHSS and is carried out by inspectors who examine both the chemical manufacturing plants and their transport through Namibia.

The goal is to cope with the outcome of a chemical event, whether it is caused by an accident or a deliberate act, and for this preparedness is crucial. This requires many activities that involve many sectors in the government.

Namibia has the capacity at its central laboratory to identify chemicals and deliver results within a reasonable time to hospitals in cases where the identity of a causative agent or material is unknown.

A significant lack of content experts in the field, combined with a lack of a chemical poisons centre in real time, may cause many casualties and the inability to provide appropriate care. A lack of purification infrastructure may bring infections into hospitals and damage clinical teams, which already lack manpower.

Recommendations for priority actions

- A poisons centre needs to be institutionalized.
- A treatment infrastructure programme that will cleanse casualties outside hospitals needs to be constructed.
- Medical system personnel need training and practice to coordinate chemical incidents
- SOPs to institutionalize multisectoral assessments for the treatment of chemical incident need to be developed.
- Regular controls and unannounced controls need to be performed to maintain safe transportation of chemicals inside and outside enterprises.

Indicators and scores

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

Strengths/best practices

- The state has mapped all the chemical plants at its disposal.

- There is a review body that maintains audit on enterprises.
- There are immediate response teams in plants prepared to address leaks and malfunctions.
- Registration numbers and material type are displayed on trucks carrying chemicals.
- There is protection equipment in factories which gives good protection to people engaged in repairing leaks / failures.
- There is an order of operations to treat leaks / failures in chemical plants.
- A program to monitor chemical plants is in place.
- There is a programme of controls on amounts, method of monitoring, maintenance and safety measures concerning chemicals.
- Skilled manpower is available.

Areas which need strengthening and challenges

- Events taking place outside factories / on roads need attention.
- Cooperation between the different ministries during an event outside the plant needs strengthening, as well as appropriate guidance to the population how to behave during a chemical event.
- Limited personal protective equipment and chemical decontamination materials are available in hospitals.
- The lack of a poisons centre which can advise on neutralizing the material through action in health care settings or on Chemical Event Management.
- Cooperation and coordination between agencies in controlling chemical incident needs strengthening.
- Consulting and selection practices by the chemical subject matter experts need strengthening.
- Large-scale chemical events that may be classified as disasters need to be understood and require the activation of resources working together under a single control.

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

Strengths/best practices

- Records of hazardous materials are kept.
- Chemical plants are supervised.
- There is control of the state recycling sites with chemical containers.
- There is a team to monitor and malfunctions in the factories.

Areas which need strengthening and challenges

- There is no national programme for medical treatment after chemical incidents.
- There is no advisory committee about chemicals and the handling of chemical incidents.
- There is no training program and simulations of chemical incidents are not undertaken.
- There is no plan that involves all government departments are required to treat a chemical incident.
- Hospitals are not prepared for a chemical incident in terms of infrastructure, knowledge and proper equipment.

Radiation emergencies

Introduction

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

Target

State Parties to have surveillance and response capacity for radionuclear hazards/events/emergencies with effective communication and collaboration among the sectors responsible for radionuclear management.

Namibia level of capabilities

Namibia has a National Radiation Protection Authority which is established under the Atomic Energy and Radiation Protection Act. The Atomic Energy and Radiation Protection Act is being implemented by ensuring that all users have emergency response plans in place. Emergency response and preparedness plans for radiological emergencies are in place at facility level. Radiation Safety Assessments are done as part of the regulatory activities under the Atomic Energy and Radiation Protection Act.

Recommendations for priority actions

- Strengthen the regulatory capacity and consider networking with other regulatory bodies in the region for the control of the import / export of radiation sources.
- Finalize the national radiological emergency preparedness and response plan and conduct drills.
- The national radiological emergency response plan must be integrated into the national disaster risk management plan.
- Strengthen the advisory role of the Atomic Energy Board to control and manage regional and local authorities on matters relating to radiation safety and radiological emergencies.
- Assess the needs in terms of technical capabilities and develop risk assessment procedures, especially at PoEs to ensure control and monitoring of radiation sources.
- Strengthen the regulatory infrastructure, especially the development of radiation emergency response and preparedness plans at all facilities and by all national institutions that are involved with radiation sources.

Indicators and scores

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

Strengths/best practices

- The Non-Proliferation Treaty (NPT), Safeguards Agreement and Additional Protocol to the Safeguards Agreement have been ratified and are being implemented to ensure control and accounting of nuclear material in the country.
- Major PoEs have capabilities in place for the detection of radiation. An MoU has been agreed with the customs authority to cooperate on matters relating to the import / export of radiation source.

- All facilities, practices and conveyors of radioactive material in the country are regulated under the Atomic Energy and Radiation Protection Act. This includes development and approval of the transport plans by the National Radiation Protection Authority. Any transport involving radioactive material is subject to an approved transport plan and authorization and inspection from the National Radiation Protection Authority.
- Inspections are arranged during the movement of radioactive material, including billing and message traffic route for each shipment.
- There is equipment available and access to a gamma spectrometry laboratory for assessment of ambient gamma dose rate; alpha and beta contamination and radionuclide concentration.

Areas which need strengthening and challenges

- A lack of human resources and organized training programmes in conjunction with a medical system that is not ready may constitute a real obstacle when an extreme radiation event happens.
- There is a lack of manpower with skills related to radiation.
- There is no incident management specialist with radiation powers in the Atomic Energy Commission of Namibia.
- No defined radiation incident management and control structure in place.
- There is no preparedness of the health system to treat victims of radiation.
- There are no poison centres in place.
- There are no reference health care facilities in place.

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

Strengths/best practices

- The National Radiation Protection Authority is a member to the National IHR Focal Point.
- Formal and informal contacts exist with the law enforcement agencies and the emergency services.
- The NPT, Safeguards Agreement and Additional Protocol to the Safeguards Agreement have been ratified and are being implemented to ensure control and accounting of nuclear material in the country.
- The Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency have been reviewed and ready for consideration by the authorities.

Areas which need strengthening and challenges

- There is no specialised health facility for radiation emergencies.
- There is a strategic plan in place which needs to be updated by reviewing the progress made to date and aligning or updating to current developments.
- The Atomic Energy Board had established a nuclear security committee, the scope of which is to include radiological emergencies. This committee should be the coordinating and controls body during a nuclear event.
- A National Radiological Response and Preparedness Plan is not in place.

Appendix: JEE background

Mission place and dates

Windhoek, Namibia, 28 November to 2 December 2016

Mission team members:

- Ambrose Talisuna, Uganda, WHO Regional Office for Africa (team lead)
- Elizabeth Bell, USA ,CDC (team co-lead)
- Hendrick Jan Ormel, The Netherlands, FAO (lead Food Safety, Linking Public Health to Security)
- Athman Mwatondo, Kenya, MoH (lead Zoonotic Disease)
- Ernesto Gozzer, Peru, UPCH (lead Preparedness/ Biosafety and Biosecurity)
- James Akpabilie, Ghana, MoHS Sierra Leone (lead National Laboratory, Immunization)
- Richard Garfield, USA, CDC, (lead National Laboratory, Emergency Operations Centres)
- Herlinda Temba, Tanzania, Africa CDC (lead Real-time Surveillance)
- Akhona Tshangela, South Africa, Africa CDC (lead Reporting)
- Ran Adelstein, Israel, MoHS (lead Chemical Events and Radiation Events)
- Paula Titalla, Finland, MoHS (co-lead National Legislation, IHR)

Objective

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

The JEE process

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

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

Limitations and assumptions

- The evaluation was limited to one week, which limited the amount and depth of information that could be managed.
- It is assumed that the results of this evaluation will be publically available.
- The evaluation is not just an audit. Information provided by <host country> will not be independently verified but will be discussed and the evaluation rating mutually agreed to by the host country and the evaluation team. This is a peer-to-peer review.

Supporting documentation provided by host country

National legislation, policy and financing

Relevant Documentation

- National Health Act 2015: <http://www.lac.org.na/laws/2015/5742.pdf>
- Public and Environmental Health Act 2015: <http://www.lac.org.na/laws/2015/5740.pdf>
- Namibia Institute of Pathology Act 1999: <http://www.lac.org.na/laws/1999/2210.pdf>
- Medicines and Related Substances Control Act 2003: <http://www.van.org.na/pdf/gaz3051.pdf>
- Biosafety Act 2006: <http://www.lac.org.na/laws/2006/3763.pdf>
- Atomic Energy and Radiation Control Act 2005: <http://www.lac.org.na/laws/2005/3429.pdf>
- Animal Health Act 2011 <http://www.lac.org.na/laws/2011/4694.pdf>
- Environmental Management Act 2007: <http://www.lac.org.na/laws/pdf/environmentalact.pdf>
- Import and Export Control Act 1994: <http://www.lac.org.na/laws/1994/980.pdf>
- Plant Quarantine Act 2008: <http://www.lac.org.na/laws/2012/4975.pdf>
- Disaster Risk Management Act 2012
- Hazardous Substances Ordinance 1974
- National Health Policy Framework 2010-2020: http://www.nationalplanningcycles.org/sites/default/files/country_docs/Namibia/namibia_national_health_policy_framework_2010-2020.pdf
- The General Health Regulations of 1969 (under revision to incorporate IHR): <http://www.windhoekcc.org.na/pdf/busi/GeneralHealthRegulation.pdf>
- Namibia National Disaster Risk Management Plan 2011: http://www.iwrm-namibia.info.na/downloads/namibia_ndrmp_8-nov_2011.pdf
- Revised National Health Emergency Preparedness and Response Plan 2013
- National Public Health Laboratory Policy 2012: http://www.mhss.gov.na/files/downloads/dcc_3182_NPHL_policy_FINAL_new%20copy.pdf
- Namibia Food Safety Policy 2014: http://www.atf.org.na/cms_documents/a40-namibiafoodsafetypolicyjune2014.pdf
- National Port Health Strategy 2016
- National technical guidelines for Integrated Disease Surveillance and Response (IDSR) 2011
- National Ebola Virus Disease Preparedness and Response Plan 2015
- Clinical Guide for Management of Pandemic H1N1 2009
- National Health Promotion Policy 2012
- MoHSS Report of assessment of core capacities for the implementation of IHR (2005) in Namibia 2011
- Terms of Reference for IHR (2005) National Focal Point 2016
- Report of assessment of core capacities for the implementation of IHR (2005) in Namibia

IHR Coordination, Communication and Advocacy

Relevant Documentation

- Namibia National Disaster Risk Management Plan 2011: http://www.iwrn-namibia.info.na/downloads/namibia_ndrmp_8-nov_2011.pdf
- Terms of reference for International Health Regulations (IHR) 2005 National Focal Point
- Memorandum of Agreement between the ministry of Agriculture, water and forestry and the Ministry of safety and security on the Control, Prevention and Eradication of Animal Disease Outbreaks (2016)

Antimicrobial resistance

Relevant Documentation

- Global Action Plan on AMR: <http://www.who.int/antimicrobial-resistance/global-action-plan/en/>
- The FAO Action Plan on AMR: <http://www.fao.org/3/a-i5996e.pdf>
- Drivers, dynamics and epidemiology of AMR in animal production: <http://www.fao.org/3/a-i6209e.pdf>
- Codex texts on Foodborne Antimicrobial Resistance: <http://www.fao.org/publications/card/en/c/7209750e-2c7a-4694-a0fe-8d7f0050acae/>

Zoonotic disease

Relevant documentation

- PVS Assessment 2008
- Animal Health Act 2011
- Contingency Plans for BSE and Avian Influenza
- Rabies Elimination Strategy
- Public and environmental Act 2015

Food safety

Relevant Documentation

- Public Environment Health Act 2015
- Namibia Food Safety Policy 2014
- Marine Resources Act 2000
- General Health Regulations 1969
- Foodstuffs, cosmetics and disinfectants ordinance 1979

Biosafety and biosecurity

Relevant Documentation

- Health & Safety Manual and SOPs for Laboratories and Health Facilities
- National IPC program and guidelines for Health Facilities
- National Laboratory Policy for NIP Ltd
- National Technical Guidelines for Integrated Disease surveillance and Response
- National Environmental and Occupational Health Policy 2010

Immunization

Relevant Documentation

- Child Care and Protection Act, 2015
- Reproductive and Child Health Policy, 2013
- EPI Guidelines final stages of finalization
- Guidelines on specific vaccines (PCV, Rotavirus, Hep B etc.)
- Child Survival Strategy, 2014
- Ministry of Agriculture, Water and Forestry 2014-15 Annual Report
- Andima J. 2 500 cases of rabies recorded in five years. The Namibian. 19 March 2015 (<http://www.namibian.com.na/index.php?id=134869&page=archive-read>)

Functional committees:

- National Polio Expert and National Certification Committee
- Interagency Coordinating Committee

National laboratory system

Relevant Documentation

- National Health Policy Framework 2010–2020
- National Public Health Laboratory Policy 2013
- ISO 15189
- ISO 17025
- WHO Guide for the Stepwise Laboratory Improvement Process Towards Accreditation (SLIPTA) in the African Region (with checklist) Version 2: 2015
- Quality Management System 4th version – CLSI
- National Standard Laboratory Guidelines (draft) 2015
- National Public Health Laboratory Policy plus Implementation Plan 2013
- Point of Care Testing Guideline (draft) 2015
- HIV/AIDS National Guidelines

Real-time surveillance

Relevant documentation

- Internal Evaluation for IHR Namibia, November 2016 (draft report)
- Revised National Health Emergency Preparedness and Response Plan, August 2013
- Surveillance Task Responsibility Calendar 2014
- National Technical Guidelines for Integrated Disease Surveillance and Response, second edition, July 2011
- WHO Guide to establishing event-based surveillance

Reporting

Relevant Documentation

- International Health Regulations (IHR) 2005, Implementation of status in Namibia 2015
- Terms of reference for International Health Regulations (IHR) 2005 National Focal Point in Namibia IHR Core Capacity Assessment Report, 2010

Workforce development

Relevant Documentation

- National Health Policy Framework 2010–2020

Preparedness

Relevant Documentation

- Disaster Risk Management Act 2012
- National Disaster Risk Management Plan 2011
- National Health Emergency Preparedness and Response Plan 2013
- National Ebola Virus Disease Preparedness and Response Plan 2015

Emergency response operations

Relevant Documentation

- National Health Emergency Preparedness and Response Plan
- International Health Regulations 2005

Linking public health and security authorities

Relevant Documentation

- None

Medical countermeasures and personnel deployment

Relevant Documentation

- Disaster Risk Management Act, 2012

Risk communication

Relevant Documentation

- IEC materials were visible and accessible during site visits.

Points of entry (PoE)

Relevant Documentation

- Port Health Strategy, 2016
- International Health Regulations, 2005

Chemical events

Relevant Documentation

- None

Radiation emergencies

Relevant Documentation

- Atomic Energy and Radiation Protection Act, 2005
- Radiation Protection and Waste Disposal regulations, 2011
- RASIMS report
- IRRS report, 2008

