JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES

of the

REPUBLIC OF SEYCHELLES

Mission report:
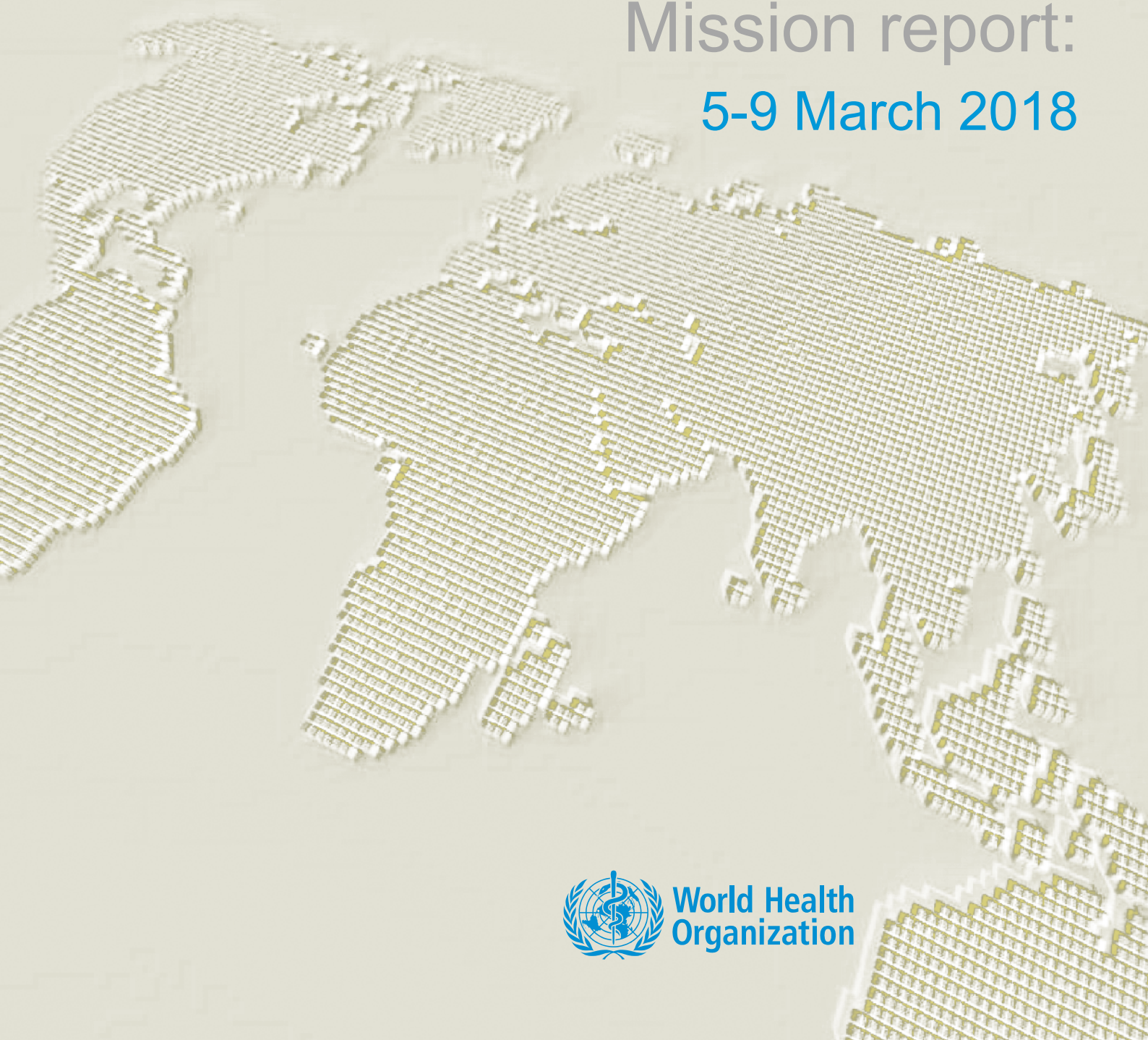5-9 March 2018

World Health Organization

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- The WHO Country Office for Seychelles.

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Acronyms and abbreviations

ANHRD	Seychelles Agency for National Human Resource Development
AMR	Antimicrobial resistance
ATCC	American Type Culture Collection
bOPV	Bivalent oral polio vaccine
BSL	Biosafety level
CBRN	Chemical, biological, radiological, nuclear
CL	Seychelles Clinical Laboratory
CLSI AST	Clinical Laboratory Standards Institute Antimicrobial Sensitivity Test
CMS	Seychelles Central Medical Stores
CSR	Corporate social responsibility
DRDM	Seychelles Department of Risk and Disaster Management
DSRU	Seychelles Disease Surveillance and Response Unit
DVDMT	District Vaccine Data Management Tool
EOC	Emergency operations centre
EPI	Expanded Programme on Immunization
EQA	External quality assurance
FAO	The Food and Agriculture Organization of the United Nations
FCC	Seychelles Food Control Committee
FCU	Seychelles Food Control Unit
FETP	Field epidemiology training programme
FTC	Seychelles Fair Trading Commission
GIS	Geospatial information systems
GLASS	WHO Global Antimicrobial Resistance Surveillance System
GOARN	Global Outbreak Alert and Response Network
HCA	Seychelles Health Care Agency
HCAI	Health care associated infection
HPV	Human papilloma virus
IAEA	International Atomic Energy Agency
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICRP	International Committee for Radiological Protection
IDSR	Integrated disease surveillance and response
IEC	Information, education and communication
IHR	International Health Regulations
IHR NFP	National IHR focal point
INFOSAN	WHO International Network of Food Safety Authorities
IOC	Indian Ocean Community

IPC	Infection prevention and control
IPV	Inactivated polio vaccine
JEE	Joint external evaluation
MCM	Medical countermeasures
MDRO	Multidrug resistant organism
MERS-CoV	Middle East respiratory syndrome - coronavirus
MMR	Measles, mumps and rubella vaccine
MOH	Ministry of Health
MOU	Memorandum of understanding
MRSA	Multidrug resistant staphylococcus aureus
NBA	Seychelles National Biosecurity Agency
NEOC	National emergency operations centre
NFP	National focal point
NIHSS	Seychelles National Institute for Health and Social Services
NISTI	Seychelles National Institute of Science, Technology and Innovation
OIE	World Organisation for Animal Health
OIE PVS	OIE Performance of Veterinary Services
PHA	Seychelles Public Health Authority
PHEIC	Public health emergency of international concern
PHEOC	Public health emergency operations centre
POC	Point of care
POE	Point of entry
PPE	Personal protective equipment
QMS	Quality management system
SADC	Southern African Development Community
SAICM	Strategic Approach to International Chemicals Management
SARS	Severe acute respiratory syndrome
SBS	Seychelles Bureau of Standards
SLMTA	Strengthening Laboratory Management Toward Accreditation
SMT	(Vaccine) Supply Monitoring Tool
SNMC	Seychelles Nurse and Midwife Council
SOPs	Standard operating procedures
SPHL	Seychelles Public Health Laboratory
SPS	Sanitary and phytosanitary
TB	Tuberculosis
tOPV	Trivalent oral polio vaccine
WAHIS	World Animal Health Information System
WHO	World Health Organization

Executive summary

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

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

The assessors concluded that Seychelles' commitment to building and/or maintaining capacities to detect, assess, notify and respond to major public health events enjoys particularly high-level political commitment and support. As a result, Seychelles is able to demonstrate best practice in a number of areas such as vaccination coverage and human health laboratory services, which are exemplary.

Three overarching recommendations emerged from the evaluation. These address cross-cutting challenges affecting Seychelles' capacities across many of the different technical areas that are explored in greater depth during the JEE process. Broadly speaking, the recommendations call for the formalisation of existing procedures, and documentation of existing processes. In small nations with strong informal but functional networks, the need to formalize existing relationships, methods and procedures is not always obvious when processes work well and health professionals are familiar with one another—as they clearly often do, and are, in Seychelles—but taking steps in this direction strengthens the foundations of public health emergency preparedness and response. It was also noted that while Seychelles' human and animal health sectors demonstrate progress and good practice in working together, communication and collaboration between the two could be improved, with great consequent benefit for overall health security.

The three overarching recommendations are outlined below.

1. **Strengthen the country's One Health Approach by conducting a review of the integration of the animal and environmental health sectors across all technical areas of IHR implementation. Implement formal joint mechanisms and processes to fill any gaps and institutionalize the One Health approach.**

It was noted that while Seychelles' human and animal health sectors demonstrate progress and good practice in working together, communication and collaboration between the two could be improved, with great consequent benefit for overall health security.

2. **Establish a comprehensive, multisectoral training and simulation exercise programme to test, validate and enhance preparedness and response operations. Conduct after action reviews to audit the performance of the emergency preparedness and response plans.**

It was noticed that not all of Seychelles' existing health security plans and preparedness systems have been adequately validated and refined by a structured training and exercise programme. With a small, geographically restricted population, outbreaks and other public health events can have disproportionately high human consequences, and margins for error are slim. In this context, frequent, deep testing is needed to exercise and refine preparedness and response in all areas.

3. **Conduct a review of workforce needs and vulnerabilities across all IHR technical areas. Address gaps through recruitment and targeted training allowing existing and new staff to multitask and cover different health security roles. Complete the ongoing review of staff retention measures, and enact its recommendations.**

It is commendable that Seychelles is already considering steps to address the problem of staff retention and capacity building, which were noted as issues in many technical areas. This process should be formalised and prioritised, with particular attention to protecting the health security system by building capacity and supporting multitasking across the sectors of One Health.

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

Republic of Seychelles: Scores and Priority Actions

Technical areas	Indicators	Score
1. National legislation, policy and financing	P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR (2005)	3
	P.1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with IHR (2005)	3
2. IHR coordination, communication and advocacy	P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR	3
3. Antimicrobial resistance	P.3.1 Antimicrobial resistance detection	1
	P.3.2 Surveillance of infections caused by antimicrobial-resistant pathogens	1
	P.3.3 Health care-associated infection (HCAI) prevention and control programmes	5
	P.3.4 Antimicrobial stewardship activities	1
4. Zoonotic diseases	P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens	2
	P.4.2 Veterinary or animal health workforce	2
	P.4.3 Mechanisms for responding to infectious and potential zoonotic diseases are established and functional	2
5. Food safety	P.5.1 Mechanisms for multisectoral collaboration are established to ensure rapid response to food safety emergencies and outbreaks of foodborne diseases	5
6. Biosafety and biosecurity	P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal and agriculture facilities	2
	P.6.2 Biosafety and biosecurity training and practices	2
7. Immunization	P.7.1 Vaccine coverage (measles) as part of national programme	5
	P.7.2 National vaccine access and delivery	5
8. National laboratory system	D.1.1 Laboratory testing for detection of priority diseases	4
	D.1.2 Specimen referral and transport system	5
	D.1.3 Effective modern point-of-care and laboratory-based diagnostics	3
	D.1.4 Laboratory quality system	2
9. Real-time surveillance	D.2.1 Indicator- and event-based surveillance systems	4
	D.2.2 Interoperable, interconnected, electronic real-time reporting system	4
	D.2.3 Integration and analysis of surveillance data	4
	D.2.4 Syndromic surveillance systems	4

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

PREVENT

National legislation, policy and financing

Introduction

The International Health Regulations (IHR) (2005) provide obligations and rights for States Parties. In some States Parties, implementation of the IHR (2005) may require new or modified legislation. Even if new or revised legislation may not be specifically required, states may still choose to revise some regulations or other instruments in order to facilitate IHR implementation and maintenance more effectively. Implementing legislation could serve to institutionalize and strengthen the role of IHR (2005) and operations within the State Party. It could also facilitate coordination among the different entities involved in their implementation. See detailed guidance on implementing IHR (2005) in national legislation at:

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

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

Target

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

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

Republic of Seychelles: level of capabilities

Seychelles has strived to establish a legal foundation to support and enable implementation of the IHR (2005). The country has a Public Health Act, which was revised and adjusted to fulfil the requirements of IHR compliance, along with other relevant legal frameworks such as a Quarantine Act, a Food Act and a Pesticide Act—though not all of these were revised in the same way. Seychelles has also established a Public Health Authority, which has the role of monitoring, evaluating and ensuring efficient operation of the Public Health Laws.

It should be emphasised that, although notable efforts have been made in the health sector, there is a need for consistent use of existing relevant legal frameworks in other sectors involved in implementing the IHR (2005).

Since Seychelles is an island country, it has no ground crossings. Nonetheless, the country has produced a memorandum of understanding (MOU) with all Indian Ocean countries to provide a collaboration and coordination framework to guide preparation for, and response to, public health emergencies with the potential for international spread through seaports and airports.

The Government allocates an average of 11-13% of the national gross domestic product to the health sector.

Recommendations for priority actions

- Define the IHR functions, roles and responsibilities that should be incorporated into the Public Health Act as regulations

- Review the Quarantine Act to include all IHR-relevant articles and requirements

- Review the memorandum of understanding with other Indian Ocean countries to incorporate cross-border surveillance and response components in the context of the IHR (2005).

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

- The country has developed a Public Health Act, a Public Health Authority Act and a Quarantine Act as the legal instruments governing public health implementation.

- The Public Health Act was revised in 2015 to facilitate the implementation of the IHR (2005).

- The country has a memorandum of understanding with other Indian Ocean countries for collaboration and coordination in preparing for, and responding to, public health emergencies.

Areas that need strengthening, and challenges

- The revised Public Health Act does not address specific areas other than the essential functions of the National IHR Focal Point (NFP). It should fully incorporate all relevant functions, roles and responsibilities pertaining to IHR implementation, including the core and expanded functions of the NFP.

- The MOU with other Indian Ocean countries has not been revised to incorporate issues relevant to cross-border surveillance for seaports and airports in the context of 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

- The revised Public Health Act was used to facilitate the response to a Dengue fever outbreak in 2016.

- The country has established multisectoral bodies (the Integrated Disease Surveillance and Response (IDSR) Committee and the Department of Risk and Disaster Management (DRDM)) for the coordination of public health emergency responses.

Areas that need strengthening, and challenges

- The revision of the Public Health Act has not identified adjustment needs for other existing legal instruments relevant to IHR implementation, including the 1948 Quarantine Act, the 1996 Pesticide Control Act and the 2014 Food Act.

- Outside the health sector, there is no evidence of systematic use of relevant acts in sectors involved in the implementation of IHR.

- The revised Public Health Act does not address specific areas other than the NFP functions.

IHR coordination, communication and advocacy

Introduction

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

Target

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

Republic of Seychelles: level of capabilities

The national IHR focal point (IHR NFP) for Seychelles is situated within the Public Health Authority. A coordination mechanism exists within the IDSR Committee and has been in place since 2003. The committee is multi-sectoral and multidisciplinary, and is positioned to coordinate the establishment of core capacities and efforts to implement IHR 2005 as required. It meets regularly and enjoys strong collaboration with the DRDM.

This committee also provides a platform for intersectoral collaboration that includes both the animal health and human health sectors. Its members include the Veterinary Department, the Epidemiology Unit of the Public Health Authority, the Health Care Agency, and the clinical and public health laboratories.

There is easy information exchange between the Veterinary Department, the Epidemiology Department and Laboratories at national level regarding zoonotic risks or events, but equivalent promptness is still required at local level. This is, however, complicated by the unique circumstances of small Island states like the Republic of Seychelles.

Action plans are in place to ensure adequate coordination and communication mechanisms at the MOH, Epidemiology and Surveillance Unit. Periodic updates on IHR implementation are shared (informally) with the various relevant sectors represented on the IDSR Committee.

Recommendations for priority actions

- Identify representatives from every relevant agency that links with the IHR NFP.
- Finalize all the Terms of Reference for the stakeholders outlined in the existing national preparedness plan.
- The IHR NFP should provide annual updates to all stakeholders on the scores generated by the IHR States Parties Annual Report.
- Evaluate the effectiveness of the IHR NFP in playing its coordination role.

PREVENT

Indicators and scores

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

Strengths/best practices

- The existing multisectoral collaboration and communication mechanism (IDSR Committee meetings) forms the basis for regularly addressing epidemic prone diseases.

- Progress in IHR implementation is shared with IDSR Committee members from across different sectors.

- The Public Health Authority, law enforcement, port/airport control and customs are linked during unusual health events or suspected outbreaks. This was demonstrated during recent events such as the 2014-2016 Ebola epidemic in West Africa and the 2017 plague epidemic in Madagascar.

- All members of the IDSR Committee subscribe to available IDSR guidelines for collaborative investigation of suspected outbreaks and other public health events.

Areas that need strengthening, and challenges

- Although IDSR guidelines are used to facilitate communication between the animal and human health sectors and other agencies, in the future such communications will have to be guided by formalized processes, following protocols and SOPs, in order to ensure sustainability.

- The functions of the IHR NFP are yet to be evaluated for effectiveness in the coordination role.

- It has been observed that the five people with access to the Event Information Site are all at the Public Health Authority, a situation that should be reviewed to include other sectors and engender wider, stronger linkages between the IHR NFP and different sectors.

Antimicrobial resistance

Introduction

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

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

Target

Support work coordinated by the FAO, OIE and WHO to develop an integrated global package of activities to combat antimicrobial resistance, spanning human, animal, agricultural, food and environmental aspects (i.e. a One Health approach). This would include: (i) having a national comprehensive plan for each country to combat antimicrobial resistance; (ii) strengthening surveillance and laboratory capacity at national and international levels following agreed international standards developed in the framework of the Global Action Plan; and (iii) improved conservation of existing treatments and collaboration to support the sustainable development of new antibiotics, alternative treatments, preventive measures and rapid, point-of-care diagnostics with systems to preserve new antibiotics.

Republic of Seychelles: level of capabilities

Seychelles has a well-developed national programme for infection prevention and control (IPC) that has been in force since 2010. There is a national level IPC nurse who works within the Health Care Authority (HCA) and supports the IPC activities in the 15 public community health hospitals and 14 other hospitals across the country. Although a purpose-built isolation facility is planned, there are already processes (national IPC guidelines) and legislation (the Public Health Act) in place for isolation and quarantine in the event of a suspected outbreak of infectious disease.

Recent achievements in IPC include the development of the National Strategic Framework 2014-2018, which addresses Seychelles' priorities in this area. Activities advancing IPC include designation of infection control link nurses in all health facilities, and provision of regular training workshops for health and allied health workers using the IPC manuals and guidelines developed, with help from WHO, in November 2014.

An informal task force has been working on antimicrobial resistance (AMR) since 2017. This task force includes representatives from the National Public Health Laboratory; the Pharmaceutical Council; the Health Care Agency; the Public Health Agency; National Biosecurity authorities; the agricultural sector; and a practicing clinician.

Seychelles conducted a 'One Health' stakeholder workshop to develop a situational analysis in May 2017, as part of the process for developing a National Action Plan for Antimicrobial Resistance (this plan is currently in draft form). In the meantime, the national clinical laboratory has been designated as the national reference laboratory for AMR, and conducts AMR detection using CLSI AST (Clinical Laboratory Standards Institute Antimicrobial Sensitivity Test). The country is yet to enrol in GLASS (WHO'S Global AMR Surveillance System).

PREVENT

Although Seychelles has no up-to-date legislation on antibiotic use in animals and humans (the current legislation covering this area is the Medicines Act), there is a restriction on importing and dispensing antibiotics for human and animal health.

Pharmacists from the Health Care Agency collect data on use patterns for reserved antimicrobials at the main hospital and broad spectrum antibiotics are generally used within the public health system, but data on antibiotic use by private health care providers is more difficult to obtain. Use data is reported quarterly to the Medicine & Therapeutic Committee and the management of the HCA.

On the other hand, systems to monitor AMR are not as well developed for veterinary services—although the national focal person for the World Organization for Animal Health (OIE) collects and submits public sector data on the quantities and usage patterns of antimicrobial agents in animals.

Recommendations for priority actions

- Formalize the national One Health AMR taskforce by developing terms of reference and establishing the mechanisms necessary for it to function.

- Complete the development of the National Action Plan for Antimicrobial Resistance, with input from the human, animal, agricultural and environmental health sectors.

- Upgrade laboratory information systems to improve the extraction of AMR data, and ensure the integration of data from the animal and environmental sectors, to improve One Health reporting on AMR.

- Increase investment into human, regulatory and infrastructural (laboratory) resources in a manner that will improve AMR-related activities.

Indicators and scores

P.3.1 Antimicrobial resistance detection - Score 1

Strengths/best practices

- The national clinical laboratory isolates and identifies bacterial agents from clinical specimens. It has the capacity to test susceptibility on all infectious isolates using the disc diffusion method, and to interpret results according to CLSI standards.

- Seychelles has a system for reviewing AMR surveillance data to monitor susceptibility patterns to microbial agents (for human health).

- There is a process in place for regular dissemination of data to help policy makers revise recommendations for case management in health facilities, and for sensitization of clinicians, regulators, pharmacists and the general public.

Areas that need strengthening, and challenges

- There is no national AMR action plan in place.

- There are inadequate human resources to address AMR, and training in performing and interpreting AST (antimicrobial sensitivity testing) is limited.

- There is a lack of essential reagents such as ATCC (American Type Culture Collection) for monitoring the quality of antimicrobial susceptibility testing.

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

Strengths/best practices

- Laboratories can detect and report multi drug resistant staphylococcus aureus (MRSA) and other multi drug resistant organisms (MDROs).

- MRSA data is analysed by the Disease and Surveillance Response Unit (DSRU), and results are disseminated in weekly updates.

Areas that need strengthening, and challenges

- There is no established system for surveillance of resistant pathogens for human, animal and environmental health.

- Problems with data extraction from the existing Laboratory Information System software mean that laboratory data cannot easily be exported and analysed. This impedes AMR surveillance.

- There is limited human capacity for management (i.e. collection, collation, analysis and reporting) of AMR data.

P.3.3 Healthcare associated infection prevention and control programmes - Score 5

Strengths/best practices

- Seychelles has a well-developed IPC programme that has been established since 2010. The programme is managed at national level by a dedicated IPC nurse, who has ensured that written policies and guidelines are in place, and that both electronic and paper-based monitoring tools are being used.

- IPC activities are managed by a multidisciplinary IPC committee that draws up an annual action plan and holds scheduled meetings. Minutes of these meetings are kept.

- A "frontline organisation" or network of focal persons is in place to champion IPC in all health centres and hospital units.

- Seychelles has achieved the WHO target of one IPC nurse per 250 hospital beds.

- Regular re-training is scheduled to ensure that all cadres of staff remain familiar with the guidelines.

- Measures are in place for monitoring IPC practices and measures. Feedback systems exist to help improve quality of care.

Areas that need strengthening, and challenges

- There is a need to recruit and train additional staff support activities related to health care associated infections (HCAI).

- There is a need for more prompt feedback regarding the work of the IPC champions and their leads at facility level. There are currently excessively long turnarounds in implementing the findings from facility audits.

- Appropriate isolation facilities should be established in Seychelles.

P.3.4 Antimicrobial stewardship activities - Score 1

Strengths/best practices

- There are national antibiotic guidelines for use in hospitals and community health services.

- Clear standard operating procedures (SOPs) have been developed for prescribing 'reserved' antibiotics. This can only be done at hospitals.

- Regulations require licensing to import reserved antibiotics.

Areas that need strengthening, and challenges

- There are inadequate staff to support the development and implementation of antibiotic stewardship activities.

- Clinicians at public health facilities show poor compliance with guidelines.

- There is a need for legislation and regulation on medicine use, to control private practice and veterinary use of antimicrobials.

- Data is lacking on antibiotic use in the private health sector and in animal health.

Zoonotic diseases

Introduction

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

Target

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

Republic of Seychelles: level of capabilities

With an economy largely dependent on tourism, Seychelles has expressed political commitment to strengthening the health system for effective prevention, early detection and rapid response regarding any public health emergency events, including zoonoses. The country has established a list of seven priority zoonotic diseases with greatest potential public health impact:

- Leptospirosis

- Avian influenza

- Middle East respiratory syndrome - coronavirus (MERS-CoV)

- Salmonella

- Giardia

- Rift Valley fever

- West Nile fever.

A national multisectoral surveillance plan for these priority diseases does not yet exist, but could become a driving force to steer collaboration among health sectors.

The public health sector has a functioning surveillance system for detecting and reporting zoonotic diseases through the IDSR. This uses a combination of approaches including but not limited to event-based surveillance, syndromic surveillance, rumour tracking, obligatory reporting and laboratory confirmation of suspected cases.

In the animal health sector, however, the surveillance system is not well established. Although there is an initiative to digitize reporting through adoption and streamlining of a mobile-based reporting system, the animal health surveillance system remains characterized by lack of clear structure, inadequate manpower and limited funding.

In general, routine reporting of zoonotic diseases from both sectors is still suboptimal and requires improvement.

In Seychelles, some functions of the animal health sector are under the jurisdiction of the National Biosecurity Agency (NBA), in line with the Animal and Plant Biosecurity Act 2014. These include issuance of import permits for animal source foods, laboratory diagnosis, and border inspections.

Despite efforts to improve the required capacities for the management of zoonotic diseases, collaboration among the various health sectors (human, animal and environment health) remains weak. There is no formalized and streamlined multi-sectoral collaboration for surveillance and response to zoonotic events, and this hinders effective, rapid management of such events.

On the other hand, there are some successes. The importance of a multi-sectoral approach in dealing with health risks at the animal-human-environment interface has been showcased by a recent collaborative initiative between the human and animal health sectors. This project involved a joint investigation to determine the role of livestock species in the epidemiology of human leptospirosis.

The overall capacity of the national health system is severely constrained by a workforce shortage, especially in the animal health sector. This poses a serious challenge to Seychelles' ability to progress and advance its technical capacity. In the past, there were seven veterinarians in the public sector; at time of writing there are two, representing an attrition of 71%.

Recommendations for priority actions

- Establish a national One Health coordination committee. Identify members, formulate TORs, develop SOPs, and formalize it through endorsement by senior authorities.

- Develop and implement a national multisectoral surveillance plan for priority zoonotic diseases.

- Develop multi-sectoral prevention and control/preparedness and response plans for priority zoonotic diseases, including contingency plans for outbreaks.

- Establish and operationalize an information exchange system or platform to connect the animal and human health sectors. Develop SOPs for its use, with a focus on interoperability between different sectors' information systems.

- Train and deploy additional workforce in the animal health sector, and build technical capacity nationally through field epidemiology training programmes (FETP) for both human and animal health personnel.

Indicators and scores

P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens - Score 2

Strengths/best practices

- A provisional list exists that names seven priority zoonotic diseases of public health importance.

- The public health sector has a strong surveillance system coordinated by the DSRU. Active and passive surveillance systems are in place.

- A web-based surveillance system is in place, with geospatial information systems (GIS) and integrated event reporting, syndromic surveillance, sentinel monitoring, rumour monitoring, etc.

- Though it is mostly passive, a surveillance system is in place to detect and report on priority zoonotic diseases in the human health sector. Disease-specific active surveillance is employed for a few diseases.

- Compulsory disease reporting is in place in the human health sector, with reporting to national level through IDSR, including for zoonotic diseases.

- Mobile phone technology is being introduced for reporting animal diseases.

- Diagnostic laboratories are available in the public health sector. In the animal health sector, this capacity is currently being established by the NBA.

Areas that need strengthening, and challenges

- Zoonotic disease reporting is weak in both human and animal surveillance systems, and the situation in the animal health sector needs special attention. Seychelles needs to establish strong animal and human zoonotic surveillance systems. The country is at risk of incursion of high consequence diseases/pathogens from neighbouring countries and regions, through movement of people and animal products.

- Linkages and information exchanges between health sectors require improvement, in light of current weak collaboration in priority zoonotic disease detection and response.

- Diagnostic laboratories play critical roles, and should be integral parts of surveillance systems. Finalization of the national veterinary laboratory should be prioritised.

P.4.2 Veterinary or animal health workforce - Score 2

Strengths/best practices

- Animal health personnel are enrolled in ongoing regional FETP. This practice benefits the animal health workforce.

- In Seychelles, some animal health functions are the responsibility of different organizations and sectors: for example, meat inspection in local slaughterhouses and certification of livestock imports remain under the respective jurisdictions of the public health authority and national biosecurity authority. In the absence of adequate veterinary manpower, this arrangement enables the country to ensure food safety, and lessens the risk of introducing infectious diseases/pathogens through import of livestock and livestock products.

Areas that need strengthening, and challenges

- There is a critical shortage of veterinary manpower in the country, with only two veterinarians working in the public sector. Seychelles needs to take a bold step to enhance its animal health workforce, through training and deploying veterinary personnel to undertake a range of functions including but not limited to inspection and certification of livestock imports at border posts: ante- and post-mortem inspections at slaughterhouses; laboratory diagnosis; disease reporting; and surveillance.

- The country should sustain the involvement of animal health personnel in the existing FETP. Furthermore, the existing workforce requires additional on-the-job training on basic epidemiology that includes the provision of tools to support disease outbreak investigation procedures.

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

Strengths/best practices

- Seychelles has public health and animal health acts that recognize the importance of strengthening its health system to effectively prevent, detect and respond to zoonotic infections/disease threats.

- A dedicated agency, the National Biosecurity Agency, enforces sanitary and phytosanitary (SPS) measures in line with international standards, to avert the risk of introducing new pathogens into Seychelles.

- A multi-sectoral preparedness and response plan is in place for avian influenza.

- The Public Health Act makes provisions for mandatory reporting of unusual diseases and deaths in animals.

Areas that need strengthening, and challenges

- The management of zoonotic diseases and infectious diseases at the animal-human-environment interface requires the One Health approach. Seychelles needs to embrace this concept and set up a mechanism to promote the One Health agenda and enhance collaboration among relevant sectors.

- There is a critical need for a streamlined, multi-sectoral, coordinated approach to effective prevention and detection of, and response to, zoonotic diseases. To this effect, Seychelles needs to develop multi-sectoral prevention and control plans as well as preparedness and response plans for priority zoonotic diseases. This will enable the country to respond swiftly to any suspected zoonotic disease/infection event in a coordinated fashion, and involving all the necessary sectors.

Food safety

Introduction

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

Target

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

Republic of Seychelles: level of capabilities

The Seychelles Food Control Unit (FCU) sits under the umbrella of the Public Health Authority, and is the main regulatory body charged with enforcing the Food Act, which was revised in 2014. The FCU coordinates the formulation and implementation of food safety legislation, standards, regulations, procedures, guidelines, methods, and tools.

The FCU works closely with different stakeholders at national and sub-national levels, including the NBA, the Seychelles Public Health Laboratory (SPHL), the Seychelles Bureau of Standards (SBS), the Customs Department, the Fair Trading Commission (FTC), and others.

As Seychelles' food demands are largely fulfilled through importing animal and plant products, the country has a system of stringent import procedures in order to minimize the risk of food safety hazards. In this regard, the FCU works closely with the NBA to issue import permits and carry out border inspection of imported items. At national level, the FCU also collaborates with the NBA to ensure food safety through ante- and post-mortem inspections at local slaughterhouses.

Seychelles has also established a Food Control Committee (FCC) and a multisectoral rapid response team respectively dedicated to responding to food safety emergencies and other health emergencies. At time of writing in March 2018, the most recent food related event took place in 2015, and was due to food poisoning of school children. Seychelles managed this event rapidly and successfully by mobilizing the rapid response team and engaging various governmental bodies including community health services, disease surveillance and response, and the SPHL.

This notwithstanding, broader collaboration between health sectors—and especially between the human and animal health sectors—needs to be strengthened. This is evidenced by the fact that the animal health sector is not represented in the rapid response team or in other national mechanisms related to food safety.

Furthermore, the limited number and capacity of health inspectors at border posts may compromise the quality of border inspections, especially considering the high volume of food imports. At time of writing there is only one agricultural officer in charge of inspecting imported animal and plant agricultural products at Seychelles international airport, and there is no veterinary or agricultural officer stationed at Victoria harbour.

Recommendations for priority actions

- Revise relevant food safety regulations to enable effective enforcement of the revised Food Act 2014.

- Develop and implement SOPs, guidelines and MOUs to enhance collaboration with key sectors on food safety issues.

- Reinforce the workforce and train relevant personnel in food safety related activities.

- Strengthen laboratory capacities in both the public and animal health sectors, through completing and equipping the veterinary laboratory and training personnel in both sectors.

- Undertake a feasibility study to inform political decision making for the establishment of a National Food Safety Agency.

Indicators and scores

P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination - Score 5

Strengths/best practices

- Seychelles has an updated food safety regulatory framework. The Food Act was revised and enacted in 2014.

- The country has a system for regular monitoring and surveillance of food safety.

- Implementation of food safety measures is undertaken through partnerships involving a range of different regulatory bodies.

- A national food safety response team is in place.

- Seychelles participates actively in international and regional food safety networks including the International Food Safety Authority Network (INFOSAN). Those involved include contact points from the Public Health Authority (PHA), and focal points from public health, animal health, plant health, trade, the SBS, and the IHR focal point.

Areas that need strengthening, and challenges

- Despite efforts to include all relevant sectors in the national food safety response team and other related national platforms, inadequate involvement of key sectors—especially the animal health sector—still needs to be addressed.

- Laboratory diagnostics capacity is a key requirement for compliance with SPS measures, and is needed in order to detect and respond rapidly to food safety events. Seychelles should consider establishing national veterinary laboratory diagnostic capacity, and enhancing the capacity of the existing NPHL.

- Effective enforcement of the National Food Act 2014 entails availability and implementation of the necessary regulations, tools, methods and procedures. To this effect, Seychelles should establish mechanisms such as SOPs and tools for detecting, monitoring and responding rapidly to food safety events.

- Considering the pressures on the workforce caused by high volumes of food imports, availability of adequate manpower is critical to enforcing the Food Act, and to executing the SOPs and using the tools. At the moment, there is a shortage of human capacity at the FCU, which is manned by only three officers.

Biosafety and biosecurity

Introduction

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

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

Target

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

Republic of Seychelles: level of capabilities

The Animal and Plant Biosecurity Act 2014 provides the legal foundation for biosecurity in the Seychelles. The Act's focus is on animals and plants, including genetically modified organisms. It is supplemented by the draft National Biosafety Framework (2005), which focuses on genetically modified organisms and products that may pose a risk to biological diversity, although this framework has not been widely implemented.

No laboratories in Seychelles are storing dangerous pathogens other than ATCC quality control strains. While many of the country's laboratories were built without biosecurity in mind, there are locked fridges, and access to the laboratories—and to special units within them—is restricted. The National Public Health Laboratory cultures some class III organisms in its biosafety level (BSL) 2 laboratory—mainly multidrug resistant tuberculosis (MDR TB). This is acceptable under WHO biosafety standards.

A new animal health laboratory is being built and is expected to be in operation in June 2018. This lab is being constructed with biosafety and biosecurity as a priority.

The Public Health Act of 2014 makes some mention of biosafety, and the National Public Health Laboratory has a draft Biosafety Manual, although this is not replicated in other laboratories.

All laboratory staff are trained in biosafety, either during their course at the National Institute of Health and Social Sciences, or outside the country. Some refresher training takes place for established staff. Staff are provided with adequate personal protective equipment (PPE).

The national polio task force regularly reviews all laboratories in order to complete the questionnaire for certification of polio-free status. The MOH Research and Ethics Committee approves all research projects, including their biosafety and biosecurity aspects.

Recommendations for priority actions

- Review the legislation and regulations that address biosafety and biosecurity and implement a policy framework that covers all laboratories. This should include measures for management and monitoring of an inventory of dangerous pathogens.

- Implement a national train-the-trainers programme sharing international standards and experiences in biosafety and biosecurity.

Indicators and scores

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

Strengths/best practices

- Legislation covering biosecurity and biosafety exists under the Animal and Plant Biosecurity Act 2014, the Public Health Act 2014, and the Quarantine Act 1996.

- Roles and responsibilities for biosecurity are spread across multiple sectors, which collaborate closely.

Areas that need strengthening, and challenges

- While elements addressing biosecurity are present in various acts, there is no comprehensive national system to ensure pathogens are secure.

- There is no inventory of pathogens kept in Seychelles laboratories.

P.6.2 Biosafety and biosecurity training and practices - Score 2

Strengths/best practices

- Biosafety is relatively well covered in Seychelles, with staff provided with PPE and training on laboratory safety.

- There are strict regulations in place governing which species can be imported into Seychelles.

Areas that need strengthening, and challenges

- A training programme is required that includes refresher training and a train-the-trainers programme, and which shares best practice from international experience. This should cover both biosafety and biosecurity for public health and clinical laboratories, as well as animal laboratories when such facilities are commissioned.

Immunization

Introduction

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

Target

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

Republic of Seychelles: level of capabilities

With a 2017 population of 91,359, Seychelles has the smallest population in Africa. Its national immunization programme has performed consistently highly in recent years, and aligns with the Global Vaccination Action Plan and Regional Strategic Action Plan 2012-2020 for Immunization 2014-2020. It was established in 1974 by the MOH, with the help of WHO, and is a key element of the country's child health services.

The national immunization programme is governed by a cumulative multi-year plan covering the period from 2014 to 2018, and including the following vaccine preventable diseases: diphtheria; measles; poliomyelitis; pertussis; pneumonia; pneumococcal disease; rotavirus; rubella; tetanus; tuberculosis; and yellow fever. The programme has expanded to include new antigens over the years such as MMR, Yellow Fever, Hepatitis B, Haemophlilus influenzae type b, HPV vaccine and rotavirus. For the past 15 years Seychelles has been one of the region's highest performing countries in terms of immunization.

The programme is coordinated, managed and supervised by the Expanded Programme on Immunization (EPI) unit, which is headed by the EPI manager. EPI staff at health facilities include nurse managers, nurses and public health officers.

Very high levels of vaccine access have been sustained, with coverage of over 97% over three years. Polio has been eliminated since 2006, inactivated polio vaccine (IPV) was introduced in 2015, and a number of underutilised vaccines have been introduced as per the Global Vaccination Action Plan. In 2016, Seychelles successfully switched from trivalent (tOPV) to bivalent (bOPV) oral polio vaccine. Seychelles conducted a coverage survey in 2016 showing 100% coverage over three years, which validated the findings of administrative data.

One unique aspect of the country's vaccine programme is that it is 90% government funded.

Cold chain management and temperature monitoring are very effective.

At the time of the JEE, a yellow fever mass vaccination campaign had recently commenced, targeting the entire population aged under 60.

Recommendations for priority actions

- Deploy and train data management staff to work in the EPI unit and elsewhere, strengthening data management capacity.

- Develop a training plan with opportunities and schedules for regular training of all cadres of staff involved in vaccine management.

- Roll out the District Vaccine Data Management Tool (DVDMT) to assist vaccine management.

Indicators and scores

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

Strengths/best practices

- Seychelles' country plan is aligned with the Global Vaccine Action Plan 2012-2020 and the Regional Strategic Action Plan 2012-2020 for Immunization 2014-2020.

- 95% of the country's 15-month old population has received at least one dose of measles containing vaccine, as reported in the administrative data and coverage survey, for three years.

- The government funds more than 90% of immunization and remains committed to ensuring that immunization is prioritized.

- 100% of the country has functional cold chain equipment.

- Stockouts are not reported at national and subnational level.

Areas that need strengthening, and challenges

- There is a need to expand the public health workforce to meet the demands of routine immunization and campaigns.

- The measles elimination strategy is not fully rolled out.

- Fever rash surveillance is underperforming.

- The frequency of supportive supervisory visits should be increased until they are at least quarterly.

P.7.2 National vaccine access and delivery - Score 5

Strengths/best practices

- Adequate provisions for ensuring cold chain are maintained until the end user. Effective vaccine delivery systems are in place including WHO approved freezers, refrigerated vans, vaccine carriers and cold boxes.

- Cold chain equipment is available at national and subnational levels.

- There is efficient, continuous temperature monitoring using temperature charts and the WHO Supply Monitoring Tool (SMT).

- More than adequate storage capacity is available at all levels.

Areas that need strengthening, and challenges

- There is a need for more human resources to support immunization activities, including around data management.

- The use of electronic vaccine supply chain management tools should be rolled out.

- A vaccine data quality assessment is needed.

DETECT

National laboratory system

Introduction

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

Target

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

Republic of Seychelles: level of capabilities

The Seychelles National Laboratory System comprises the two government laboratories that are also designated as national reference laboratories: the Seychelles Public Health Laboratory (SPHL) and the Clinical Laboratory (CL). Basic tests are also provided at some of the health facilities on the larger islands, and private practitioners offer further limited laboratory services.

At the time of the JEE, the Ministry of Health is setting up a statutory framework for licensing medical laboratories and medical laboratory practices. Currently the Seychelles Bureau of Standards (SBS) is responsible for laboratory certification (NB the SPHL has achieved ISO9001:2008 certification). There is no functional veterinary laboratory in the country, although one such facility is under construction and should be commissioned in 2018.

The newly established National Institute of Science, Technology and Innovation (NISTI) has the task of coordinating government laboratories, and will play a role in harmonizing the mandates of the veterinary laboratory with those of the SPHL and the national CL. The National Institute for Health and Social Services (NIHSS) is responsible for basic training of laboratory workers, and the country sponsors staff to take advanced and postgraduate laboratory science training abroad.

The SPHL undertakes surveillance activities and provides diagnostic testing for both human and animal health specimens, whereas the CL provides routine clinical diagnostic testing and limited surveillance (mainly in AMR). The SPHL provides food safety testing and confirmatory diagnostics for epidemic prone diseases and diseases of public health importance—guided by the Food Act, the Occupational Health Decree, and the Public Health Act.

Following the regulations of the Health Care Agency Act, the CL provides medical diagnostic support for disease management and treatment of acutely and chronically ill patients attending community clinics and hospital facilities. Samples are transported to the CL from all the health facilities on the three most populated islands (Mahé, Praslin and La Digue).

The SPHL and the CL use a laboratory information system that supports electronic notification of results to clinicians. However, the system in place needs to be upgraded to improve data retrieval and analysis.

Seychelles can conduct tests for priority diseases, and offers rapid testing for leptospirosis and Dengue fever, based on the country's epidemiological risks.

Seychelles has informal relationships with regional and international laboratories including the National Institute for Communicable Diseases (NICD) in South Africa, Institute Pasteur in Madagascar and Paris, the US Centers for Disease Control (CDC) in Atlanta, and others. The country needs to establish a framework for national external quality assurance and proficiency testing for priority diseases.

Recommendations for priority actions

- Establish comprehensive national laboratory policy and quality standards, underscored by the One Health approach, which address the requirements of the human, animal and environmental health sectors.

- Develop a strategic framework for laboratory services, in order to achieve full integration of the Seychelles Public Health Laboratory, the Clinical Laboratory, private laboratories, and others.

- Request technical assistance to support the international accreditation of the country's public health laboratories and external quality assessment systems.

- Standardize specimen transport mechanisms to meet international best practice.

- Finalise MOUs with regional laboratories to formalise access to advanced diagnostics, confirmatory tests and buffer stocks of reagents.

Indicators and scores

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

Strengths/best practices

- Seychelles provides testing for the majority of WHO diseases, and has developed routine testing capacity for other diseases of public health significance.

- There is a functional system in place to ship specimens to identified reference laboratories if national laboratories are unable to provide the required testing or confirmation capacity.

- In the absence of a national veterinary public health laboratory, the Seychelles Public Health Laboratory carries out diagnosis of zoonotic infections for the veterinary public health services.

- Investment in developing veterinary laboratory infrastructure is ongoing, and a new facility is nearing commissioning.

Areas that need strengthening, and challenges

- There is a need for a more effective system for procurement and stockpiling laboratory reagents and consumables to avoid stock outs.

- Existing mechanisms for quality assurance and proficiency testing for priority diseases should be strengthened.

- There is a need for capacity building of laboratory staff on safe laboratory practice, disease detection capability, information analysis, and report writing.

D.1.2 Specimen referral and transport system - Score 5

Strengths/best practices

- There is an organised system in place for referring specimens from clinics, hospitals and private practitioners. This is efficient particularly because of good communication and transportation links (boat, sea and road).

- The national specimen transportation system is fully funded by the government.

- Staff within the public health system have been trained in, and apply, international best practice for routine international shipment of specimens.

Areas that need strengthening, and challenges

- The standardization of national processes, procedures and infrastructure that is currently applied to international shipments should also be applied to intra-national shipments.

- There is a need to improve intersectoral collaboration with the transport and tourism sectors, local administrations, and other relevant stakeholders, in order to increase understanding of specimen referral procedures and strengthen the specimen transport system.

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

Strengths/best practices

- Rapid testing for leptospirosis and Dengue fever is available at the Clinical Laboratory.

- There is political will to invest in expanding the availability of advanced testing capability for human and animal health, in order to reduce reliance on laboratories in other countries (although this will be done with cost effectiveness in mind).

- Seychelles is able to provide a good range of microbiological tests at point of care (POC); provides in-country transportation for local diagnostics; and can dispatch specimens out of the country to identified reference laboratories if the required diagnostic tests are not provided locally.

Areas that need strengthening, and challenges

- There is a need to increase the quantity and quality of advanced and/or confirmatory testing capacity available in the country.

- There is a need to train and re-train health personnel on the use of POC tests and advanced confirmatory instruments.

- Increased budgetary investment is required for infrastructural upgrades and new equipment.

- There is a need for capacity building to counter staff shortages, and incentive programmes to combat the very high turnover of trained health personnel.

D.1.4 Laboratory quality system - Score 2

Strengths/best practices

- There is strong political will to establish a regulatory framework for national licensing of laboratories, as evidenced by an ongoing process to develop the necessary regulations.

- There have already been improvements in quality and systems, and certain standards are in place that will lead to a total quality management approach.

- National laboratories are assisting each other in achieving accreditation status through an informal, collaborative peer-to-peer audit and assessment process.

Areas that need strengthening, and challenges

- There is no accredited laboratory in Seychelles, though the SPHL is certified on the ISO9001:2008 quality management system (QMS). Both the SPHL and the CL are in the process of achieving accreditation through the WHO-endorsed Strengthening Laboratory Management Toward Accreditation (SLMTA) approach.

- NISTI can play a coordinating role, supporting government laboratories for human, animal and environmental health as they develop a national laboratory quality system.

DETECT

Real-time surveillance

Introduction

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

Target

Strengthened foundational indicators, and event-based surveillance systems that are able to detect events of significance for public health, animal health and health security; improved communication and collaboration across sectors and between subnational, national and international levels of authority regarding surveillance of events of public health significance; and improved country and regional capacity to analyse and link data from and between strengthened, real-time surveillance systems, incorporating interoperable, interconnected electronic reporting systems. Epidemiologic, clinical, laboratory, environmental testing, product safety and quality, and bioinformatics data; and advancement in fulfilling the core capacity requirements for surveillance in accordance with IHR and OIE standards.

Republic of Seychelles: level of capabilities

The Seychelles disease surveillance system employs the IDSR strategy of the WHO Regional Office for Africa, though this has yet to be fully adapted to the national context. This system has different components: paper-based surveillance, web-based e-surveillance, sentinel surveillance and event-based (rumour) surveillance. There is evident political commitment to ensuring the country is safe.

The event-based surveillance has already detected incidents through capturing—for example—spills from the port and offensive smells emanating from buildings. Reporting is done by paper, fax, telephone and intranet. The web-based reporting system created as a pilot for the Indian Ocean Games in 2011 has since been expanded to cover 57 reporting sites country-wide, including government and private facilities. Some private facilities need to improve the overall timeliness of their reporting into the system.

There is an early warning system in place to detect epidemic prone diseases and unusual health events, including through surveillance for influenza-like illness and severe acute respiratory illness; gastroenteritis; and Dengue-like illness. Other initiatives include surveillance for fever rash (by the DSRU and EPI); nosocomial infections; AMR; and cancer.

Surveillance stakeholders include private facilities, the SPHL, veterinary services and the community at large.

All this notwithstanding, as an overarching issue, animal health surveillance is not on a par with human health surveillance.

Recommendations for priority actions

- Adapt the IDSR Second Edition Technical Guidelines for the Seychelles, and develop SOPs for implementing surveillance.

- Roll out IDSR Second Edition training systematically to all staff in the human and animal sectors.

- Develop an interoperable, interconnected, electronic real-time reporting system, including both the public health and veterinary surveillance systems, which is capable of sharing data with all relevant stakeholders.

DETECT

- Establish a community-based surveillance system to complement event-based surveillance.

- Review legislation and regulations pertaining to surveillance, to strengthen reporting by private facilities.

Indicators and scores

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

Strengths/best practices

- Seychelles provides excellent accessibility to health care.

- The DSRU provides a country-wide surveillance system.

- The country has relatively good internet and intranet connectivity—though this is problematic in some areas.

- Focal points are in place in all reporting sites.

- The Indian Ocean Community (IOC) shares a One Health network (Reseau SEGA One Health) that connects the animal and human health sectors across the IOC member states. It has a dedicated unit in the IOC secretariat in Mauritius.

- Surveillance reports are disseminated weekly.

- Regional IOC teleconferences provide regular opportunities for information exchange.

- All three DSRU staff members are trained in field epidemiology.

Areas that need strengthening, and challenges

- New regulations are needed to strengthen weekly reporting by private facilities.

- Periodic training is required on IDSR, to be held at least annually.

- Further investment is required to make implementation of the e-surveillance system fully functional.

- There is a need for full implementation of the One Health Strategy, including through SOPs and MOUs to formalize further integration between the human health sectors and others such as agriculture, veterinary services and the environment.

- The high turnover of health care professionals should be addressed.

- Inadequate reporting rates in private facilities should be addressed.

D.2.2 Interoperable, interconnected, electronic real-time reporting system - Score 4

Strengths/best practices

- A web-based e-surveillance system is in place.

- All facilities are connected to an intranet system.

- Several systems are operated using the IDSR approach (routine surveillance, sentinel surveillance and event-based surveillance).

- GIS-based disease-mapping capabilities are in place.

- A dedicated server connects health authorities with the Ministry of Land Use and Habitat.

- Email alerts are issued to relevant stakeholders when there is notification of a priority notifiable disease.

- DSRU has been decentralized to the second largest island, Praslin.

- Laboratory services are directly linked to the surveillance system.

DETECT

Areas that need strengthening, and challenges

- Weak internet connectivity can affect some facilities, especially in Praslin, and some areas have no internet access at all.

- Surveillance services should be extended to private facilities.

- Weather data should be included in surveillance activities.

- Services should be extended to the general public, in the form of community-based surveillance.

- Some partners still fail to comply with reporting requirements.

- Public health and veterinary surveillance systems are not yet locally interconnected.

D.2.3 Analysis of surveillance data - Score 4

Strengths/best practices

- A web based e-surveillance system is in place, and reports are verified with a parallel paper-based system.

- GIS-based disease-mapping capabilities are in place.

- Thresholds and alert lines are derived from the previous five years of data.

- Data is analysed and reports are disseminated weekly.

Areas that need strengthening, and challenges

- Data analysis modules in web-based surveillance need to be reviewed.

- There is a need for in-depth analysis of surveillance data and operational research.

- Seychelles could benefit from using modelling to predict possible epidemics.

- There is a need to build the biostatistics capacity of local staff.

D.2.4 Syndromic surveillance systems - Score 4

Strengths/best practices

- Well-established routine healthcare-based syndromic surveillance systems are in use for a number of conditions, including ILI, fever rash syndrome and Dengue-like syndrome.

- There is extensive coverage of the population with syndromic surveillance.

Areas that need strengthening, and challenges

- There is a need for more regular training of health care professionals in syndromic surveillance initiatives.

- Seychelles should address the high turnover of doctors and other staff involved in syndromic surveillance.

- Syndromic surveillance does not always adhere strictly to case definitions. This should be addressed.

Reporting

Introduction

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

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

Republic of Seychelles: level of capabilities

The Seychelles Public Health Act was revised in 2015 to comply with IHR implementation, and includes a provision for reporting a potential public health emergency of international concern (PHEIC) to WHO and OIE. A designated IHR NFP, comprised mainly of representatives from the Ministry of Health, is in place; and Seychelles also has a designated OIE contact person who has been trained, with support from FAO/OIE, on reporting procedures.

Seychelles has identified the high priority need to revise the membership of the IHR NFP in the context of One Health, to include other relevant sectors including animal health, environment and wildlife. In the form of the IDSR Committee, the country, already has one mechanism that serves as a multi-purpose platform for national level interaction between different One Health stakeholders.

While the country has not suffered a major PHEIC in recent years, the NFP usually sends communications to WHO on events that may constitute PHEICs, having consulted the IHR decision-making instrument as necessary. This was the case during the Plague outbreak that occurred in neighbouring Madagascar in 2017, where Seychelles reported some suspected cases of Plague (these were later confirmed negative).

The Seychelles NFP has been consistently compiling and sending annual reports to the World Health Assembly (WHA) for the past eight years. Further opportunity for testing reporting capacity could come from simulation exercises, with participation of all relevant sectors, on detection and reporting of events with the potential to cause a PHEIC.

The animal health reporting system also needs to be tested.

Recommendations for priority actions

- Facilitate access to all relevant WHO, OIE and FAO learning packages for the national focal points for the IHR, the OIE and the World Animal Health Information System (WAHIS).

- Develop and implement a simulation exercise programme to strengthen reporting to WHO and OIE as appropriate.

- Ensure that the full complement of documentation (protocols, regulations and legislation) is in place as required for approving and reporting to WHO and OIE on events that may constitute a PHEIC.

- After the identification, assessment and reporting of any event that may constitute a PHEIC to WHO and OIE, routinely conduct after action reviews involving all relevant sectors, and implement improvements based on the lessons identified.

DETECT

Indicators and scores

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

Strengths/best practices

- Seychelles has a designated NFP with clearly defined roles and responsibilities, and has sent IHR annual reports to the World Health Assembly for the past eight years.

- An OIE delegate is in place and has undergone training with the FAO and OIE.

Areas that need strengthening, and challenges

- The NFP and OIE contact points and the WAHIS national focal point have only limited access to WHO, OIE and FAO learning packages.

- The NFP membership consists primarily of representatives from the Ministry of Health. This should be revised in line with the One Health approach.

D.3.2 Reporting network and protocols in country - Score 4

Strengths/best practices

- The Seychelles Public Health Act has been revised to enable implementation of the IHR, with a provision for reporting events that may constitute a PHEIC to WHO and OIE.

- The country has demonstrated effective use of the IHR decision-making instrument to assess such events and notify to WHO and OIE.

Areas that need strengthening, and challenges

- While provision exists under the Public Health Act for reporting events that may constitute a PHEIC to WHO and OIE, there are no SOPs for the reporting process.

- There have been no cross-sectoral simulation exercises on identification, assessment and reporting of such events to WHO and OIE.

- No formal after action review was conducted after the response to suspected plague cases at the end of 2017.

Workforce development

Introduction

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

Target

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

Republic of Seychelles: level of capabilities

Seychelles has made huge investments in its health workforce needs, hiring and training clinicians, nurses, public health officers and other health professionals. Centralised planning for public sector workforce needs is done by the Agency for National Human Resource Development (ANHRD). The Health Department is one of the largest government departments, both in terms of its number of employees and the portion of the government budget that it receives. It is divided into a Health Department Secretariat, a Health Care Agency, a Public Health Authority and a National AIDS Council.

The Seychelles Nurses and Midwives Council (SNMC) functions under the Nurses and Midwives Act, 1985, Caps 150, and is responsible for regulating the profession; the Allied Health Professions are governed by the Health Professionals Act 2006; The Health Professionals Council regulates professionals falling within the Allied Health Cadres; and the Seychelles Medical and Dental Council regulates the country's doctors and dentists.

In 2016, there were 684 nurses registered and practising in Seychelles (96% of whom were Seychellois), with the majority providing hospital care. The Health Professionals Council has registered 523 professionals. These include 64 public health officers (72% female); 45 pharmacists, one of whom (i.e. 2% of the total) works in the public sector; and 64 pharmacy technicians with 43 (67%) in the public sector. The private sector employs 14% of the country's 208 registered doctors, and 29% of 34 registered dentists. About 40 per cent of doctors in the country are Seychellois Nationals, but a significant proportion of these (43% of Seychellois doctors and dentists) are over 50 years of age. At the end of 2016, the Health Department had 66 specialists in its employment under bilateral cooperation agreements with Cuba (50 specialists), China (15) and Morocco (one).

There are eight veterinarians in the country, and of these only two are working in the public sector.

NIHSS is the only health training institution in Seychelles mandated under the National Qualification Framework to provide post-secondary training in nursing, biomedical sciences, dental hygiene, environmental health sciences, physiotherapy, occupational therapy, midwifery and pharmaceutical sciences, and for emergency medical technicians.

Seychelles has two epidemiologists (one in full time employment) trained by the field epidemiology programme organised by the Indian Ocean Commission. Two field epidemiologists are currently undergoing this two-year competency based training; no veterinary staff have received it yet.

Seychelles has no medical school or postgraduate opportunities, so physicians or specialists either train, or are recruited from, abroad. While attrition in the public health sector is low (five per cent per year), it has an effect because of the low baseline numbers of health care professionals. While Seychelles' statistics show that health workers are sufficient in terms of numbers, more human health specialists and more veterinary health workers are needed. The performance of health workers could be further optimized according to workload. Multi-skilling of the workforce is essential.

Recommendations for priority actions

- Develop a public health workforce strategy that addresses identified gaps in existing human resources in the human, animal and environmental health sectors, and which emphasizes cross disciplinary working by a multi-skilled public health workforce.

- Establish a basic Field Epidemiology Training Programme at the National Institute for Health and Social Services for frontline human, animal and environmental public health staff.

- Implement innovative mechanisms for providing incentives and improving retention of public health staff.

- Institute a capacity building mechanism for dedicated staff who will be responsible for public health data management and information sharing.

Indicators and scores

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

Strengths/best practices

- Seychelles has some multidisciplinary capacity (epidemiologists, veterinarians, clinicians, laboratory specialists and laboratory technicians) at national level.

- The country meets WHO recommendations for numbers of epidemiologists per given population, but continues to develop capacity to meet core IHR requirements.

- The public health officer cadre supports surveillance focal points at all health centres and in the community.

Areas that need strengthening, and challenges

- Inadequate human resource capacity in animal health needs strengthening, in order to improve linkages between human and animal health.

- Professional training for doctors, veterinarians, epidemiologists and other professional cadres is conducted overseas and funded by the government, and imposes a significant cost.

- It will be some time before the country has a significant cohort of fully trained national human resources in place.

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

Strengths/best practices

- Although there is no FETP or applied epidemiology training programme established within Seychelles, staff participate in overseas programmes through an existing agreement. Through this agreement, one epidemiologist is fully trained, two public health officers have been trained through the IOC FETP, and two public health officer are undergoing training at time of writing.

- There are plans to extend the FETP provided under IOC to include animal health.

- The NIHSS trains nurses and public health officers locally.

Areas that need strengthening, and challenges

- Although training is available to veterinary staff, it has been a challenge to recruit personnel for that training.

D.4.3 Workforce strategy - Score 2

Strengths/best practices

- There is a national public sector plan for human resources (ANHRD National Plan) that includes a chapter on the health sector.

- The National Health Strategic Plan 2016-2020 contains projections for investment in human resource development.

- There is a training master plan for healthcare workers and strong political will to continue investment in training them, in order to reduce reliance on professionals recruited from abroad.

Areas that need strengthening, and challenges

- There is a high rate of attrition of health workers from the public sector to the private health sector, and to non-health related professions.

- There is no established career pathway for public health officers.

- Although there are national plans addressing human resources for health, there are no focused plans or strategies to develop the public health workforce.

RESPOND

Preparedness

Introduction

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

Target

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

Republic of Seychelles: level of capabilities

The main industry of the Seychelles is tourism, and the country welcomes almost three times its population in visitors each year. This makes it vulnerable to infectious disease outbreaks anywhere in the world.

The country's preparedness systems were established in 2003 in response to the Severe Acute Respiratory Syndrome (SARS) epidemic; tested again in 2009 during the H1N1 outbreak; and again in 2014 during the Ebola epidemic in West Africa. From the lessons of these responses, the following plans were developed:

- Ebola Virus Disease Preparedness and Response Plan, 2014
- Seychelles Strategic Plan for Ebola Viral Disease Prevention and Containment, 2014
- Plague Epidemic 2017—Preparedness and Response Contingency Plan for Plague Outbreak
- Procedures to follow prior to arrival of ships in Seychelles (not provided to JEE team)
- Plague protocol for airport public health staff
- Guidelines for the safe handling and burial of dead bodies (not provided to JEE team).

The Disaster Risk Management Act 2014 provides the foundation for emergency preparedness and coordination. All government departments are required to have an emergency response plan in place, including Districts and schools. The Ministry of Health also has disease specific plans, and the pharmacy keeps a 3-6 month stock in case of emergency.

The Department of Risk and Disaster Management (DRDM) is responsible for coordinating all sectors during an emergency. Each sector's roles are clearly stated. In a public health emergency, should the Ministry of Health be overwhelmed, it can request the activation of the DRDM for coordination, and to bring in other sectors' resources to assist.

An assessment of environmental risks has been made, in collaboration with the IOC (though reports of this assessment were not made available to the JEE team). However, with the large influx of tourists, it is difficult to conduct assessments of infectious hazards and risks.

One constraint faced by Seychelles is in the stockpiling of public health commodities to manage all relevant risks. In one measure to circumvent this issue, Seychelles has signed agreements with suppliers in case of emergency.

The Public Health Act of 2015 enables the Public Health Authority to commandeer any facility should additional beds be required. Staff can be repurposed easily to provide surge capacity.

Recommendations for priority actions

- Conduct a risk and resource mapping exercise for potential hazards and risks, including all IHR related events and hazards.
- Update the emergency preparedness and response plan to incorporate IHR-related hazards.
- Develop and implement a training programme for rapid response teams.
- Develop a regular simulation exercise plan, and regularly conduct drills and simulations.
- Conduct a comprehensive after action review of the plague response and audit the national emergency preparedness and response plan against the outcomes of the review.

Indicators and scores

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

Strengths/best practices

- A public health emergency preparedness and response plan is in place, and is tested every two years through tabletop and functional exercises.
- An Emergency Contingency Fund is available.
- There is strong collaboration among different stakeholders through the IDSR Committee, which meets every two weeks and which includes multiple stakeholders from different ministries.
- The response plan benefits from both government and international support.

Areas that need strengthening, and challenges

- Plans should be constantly reviewed and updated.
- MOUs should be developed to formalize collaboration between stakeholders.
- Plans should be harmonized in accordance with the all hazards approach.

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

Strengths/best practices

- Environmental risks have been mapped.
- The pharmacy maintains a 3-6 month supply of all commodities.

Areas that need strengthening, and challenges

- Plans should be frequently tested.
- Plans should be revised to incorporate all IHR related hazards.

RESPOND

- Formalized agreements with stakeholders are required on roles and responsibilities during public health emergencies.

- There is a need for more and deeper training of personnel.

- Communication among IHR-relevant stakeholders could be improved.

Emergency response operations

Introduction

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

Target

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

Republic of Seychelles: level of capabilities

Seychelles has a Disaster Risk Management Act and a National Emergency Operations Centre (NEOC), located at DRDM, for national coordination of emergencies. The National Emergency Integrated Response Plan incorporates responses to all emergencies, and coordination of responses with all partners. There is a National Disaster Fund in the event of any emergency.

Seychelles has participated in a number of training and simulation exercises for disease outbreaks with the potential to spread across borders, through DRDM programmes and projects. Examples include tabletop and functional exercises for Ebola preparedness.

The MOH has certain equipment and trained specialist expertise in place to meet certain specific needs in disease outbreak situations, as do some other government institutions; but there remains room for improvement.

Recommendations for priority actions

- Develop SOPs and guidelines for EOC activation and deactivation.
- Develop and operationalize plans and SOPs for a public health emergency operations centre (PHEOC).
- Develop and implement a training programme for rapid response.
- Review and update case management guidelines to incorporate all relevant IHR-related hazards.
- Conduct a vulnerability and capacity risk assessment.

RESPOND

Indicators and scores

R.2.1 Capacity to activate emergency operations - Score 2

Strengths/best practices

- Emergency preparedness and response enjoys high-level political commitment in the government, underpinned by international and WHO support. National policies are in place, supported by a legal framework. A new bill is in the making that will further improve this foundation.

- Seychelles has a multisectoral IDSR committee, and emergency response planning follows a multi hazard approach.

- There is good institutional knowledge of different hazards, and good collaboration among stakeholders.

- A contingency fund is in place for emergency response operations.

- Simulation exercises take place frequently to test guiding documents, equipment, staff and coordination.

Areas that need strengthening, and challenges

- More prevention and control measures should be put in place, including laws to prevent the introduction of disease through points of entry.

- The emergency response plan should be revised to incorporate all IHR related hazards, and should be more frequently tested.

- Agreements between relevant stakeholders should be formalized.

- There is a need for increased resources, further training of personnel, and improved communication.

- Regulations and laws should be updated.

R.2.2 Emergency operations centre operating procedures and plans - Score 2

Strengths/best practices

- Information is shared from community level that assists in detecting any disease of outbreak concern. Community nursing/district clinics collect information and analyse patient data from different districts to detect signs of disease outbreaks.

- A comprehensive public health emergency preparedness and response plan is in place, backed by government and international support. A contingency fund is available, there is a good collaboration among relevant stakeholders, and drills and simulation exercises are conducted.

- There is a multisectoral IDSR committee that provides technical coordination of emergency preparedness and response.

Areas that need strengthening, and challenges

- There are insufficient trained personnel for specific data collection and outbreak detection work.

- There is a need for more, and more modern, detection equipment. A cost/benefit study should be done to explore the case for increasing the range of lab tests that can be done.

- Greater funding and more training are required.

R.2.3 Emergency operations programme - Score 3

Strengths/best practices

- A comprehensive, multi hazard public health emergency preparedness and response plan is in place.

- An early warning system is in place.

- The national emergency integrated response plan is supported by partner plans for response coordination, and backed by the involvement and commitment of different partners.

- A contingency fund is in place.

- Simulation exercises are held to improve responses.

Areas that need strengthening, and challenges

- In order to respond even more effectively, more specific trainings are required.

- All EOCs need to be better equipped and brought up to date.

- Field response equipment is needed, with established means of maintenance.

- Not all plans are well practiced and tested; these gaps should be filled so that staff are familiarized with their roles and improvements are made to increase effectiveness during a real event.

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

Strengths/best practices

- Treatment guidelines are available in all hospitals and health centres.

- Standard guidelines are used to treat patients.

- A triage system is in place.

Areas that need strengthening, and challenges

- Case management guidelines should be updated to incorporate all IHR-related hazards.

Linking public health and security authorities

Introduction

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

Target

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

Republic of Seychelles: level of capabilities

The Public Health Authority and the security agencies benefit from close linkages. These are enshrined in the Public Health Act 2014, the Public Health Authority Act, the Police Act and the Defence Force Act. Accordingly, the DRDM has an MOU with the security forces (although generally Seychelles has very few MOUs between government agencies).

The Public Health Act 2014 gives powers to the Public Health Authority to take action in emergencies through court processes, and allows the Public Health Authority to commandeer buildings (such as hotels) should hospitals be overwhelmed in an emergency.

All agencies have clear roles and responsibilities in such emergencies—for example, the police force is responsible for crowd control and enforcement of the Public Health Act, and the Army ensures staff safety and security of premises. This latter role was exercised as part of the preparedness and response activities around the 2017 plague outbreak in neighbouring Madagascar, when the army was used to ensure suspect cases were kept in quarantine, and that visitors were kept away until diagnosis was made.

Points of contact have been identified in the respective agencies, and clear procedures for health notifications have been disseminated.

Exercises have been conducted between the Public Health Authority and the security forces, organised through the DRDM. After these exercises the agencies debrief, prepare reports and review recommendations for improvements.

Recommendations for priority actions

- Develop a memorandum of understanding for communication and collaboration between health and security forces during public health emergencies.

- Develop a national framework for civil/military cooperation, including SOPs and guidelines.

- Include members of the relevant security forces in joint training, especially on public health emergency response.

RESPOND

Indicators and scores

R.3.1 Public health and security authorities (e.g. law enforcement, border control, customs) are linked during a suspect or confirmed biological event - Score 2

NB Seychelles has had experience in the last year of joint response between public health department and security forces, an activity commensurate with a score of 4.

Strengths/best practices

- There is a strong cadre of armed and unarmed forces in Seychelles.

- The Public Health Act is strong, and provides the Public Health Commissioner with significant leeway for action in the event of an emergency.

- Close linkages are in place between the Public Health Authority and the security forces.

- The security forces have a prominent presence at existing points of entry, of which there is a limited number.

Areas that need strengthening, and challenges

- There is a need to establish an MOU to formalize linkages between the Public Health Authority and the security forces.

- Joint health/security training should be carried out on responses, especially to infectious hazards.

- More exercises and after action reviews need to take place to highlight functional strengths and areas for improvement.

Medical countermeasures and personnel deployment

Introduction

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

Target

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

Republic of Seychelles: level of capabilities

Being an archipelago nation with a relatively small population concentrated in three major islands, Seychelles faces a unique set of geographic and logistical challenges regarding receipt and deployment of medical countermeasures, and in deploying personnel during public health events of international significance. These challenges are exacerbated by the limited health workforce and the difficulties of managing expensive national stockpiles of medical countermeasures assets.

There is no national framework for Medical countermeasures (MCM) and personnel deployment, though contingency plans are in place for Ebola and plague, following recent preparedness planning in response to these threats.

Procurement of medical supplies is financed entirely through government budgets. The country procures medicines based on the current list of essential medicines, which covers prevalent conditions and diseases as identified by the Ministry of Health. No national stockpile of MCM assets exists, but a minimum stock of three months worth of drugs and consumables (such as doxycycline, cotrimoxazole, ciprofloxacin etc. for plague) is maintained at the Central Medical Stores (CMS). This is also regarded as a buffer stock for any epidemic.

The country has experience with receipt of personnel from other countries; 60% of the doctors in Seychelles are foreign nationals and all advanced professional training is obtained abroad. However, the regulatory councils' protocols for registering health professionals need to be updated to outline clearly the particular issues of receiving personnel during PHEIC. These councils are the Seychelles Medical and Dental Council, the Seychelles Nurse and Midwifery Board, and the Health Professionals Agency.

In line with African Union recommendations, the Pharmacy Act (1990) is being reviewed to include regulations relating to emergency approvals for medications, reagents and consumables during public health emergencies.

Recommendations for priority actions

- Develop a medical countermeasures deployment plan that addresses the receipt of assets and options for country level and/or regional stockpiling.

- Develop a personnel deployment framework or plan that outlines the minimum standards for receipt (and deployment) of personnel during public health emergencies.

- Seychelles should become an active partner in the WHO Global Outbreak Alert and Response Network (GOARN), and other similar regional rapid response mechanisms.

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 a strong sense of national resilience, with a nationally funded health system, strong interagency collaboration and availability of secured funds for public health response activities.

- The outbreak-specific local response plans have laid the framework for response to other outbreaks.

- The country has well established credit lines with MCM manufacturers all over the world.

Areas that need strengthening, and challenges

- There is a need to develop a national plan and framework for medical countermeasures that addresses the most important public health risks that the country faces.

- There are no existing frameworks or MOUs with regional or international partners for stockpiling, maintaining and/or sharing MCM assets.

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

Strengths/best practices

- Provisions are in place for emergency registration of health professionals from other countries who may come in to assist Seychelles as required.

- There are good national and international relationships among stakeholders, as evidenced by the cooperation and collaboration of public health authorities in the SADC and IOC regions, and there are regional trigger mechanisms in place for making decisions regarding disaster responses.

- Overall, the country has a relatively quick and streamlined process for routine registration of health personnel.

Areas that need strengthening, and challenges

- The country has relatively limited human resources for health.

RESPOND

Risk communication

Introduction

Risk communication should be a multilevel, multifaceted process that helps stakeholders define risks, identify hazards, assess vulnerabilities and promote community resilience—thereby promoting the capacity to cope with an unfolding public health emergency. An essential part of risk communication is disseminating information to the public about health risks and events, such as disease outbreaks. For communication about risk to be effective, the social, religious, cultural, political and economic effects of the event should be taken into account—including the voice of the affected population.

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

Target

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

Republic of Seychelles: level of capabilities

Seychelles national and subnational risk communication core capacity is currently strong, due to high levels of commitment in relevant ministries, departments and agencies. A WHO consultant has assisted Seychelles in developing a risk communication strategic plan.

The Ministry of Health communications structure in Seychelles is managed through the public relations officer, who coordinates communication for the whole Ministry of Health.

At time of writing, the MOH health promotion manager coordinates risk communication. While SOPs state that the health promotion director should do this, there was no health promotion director in post. The person responsible for this task directs the media to relevant sections of the ministry and helps to bring all risk communication actors in government (including DRDM and the Ministry of Tourism) under the same roof.

The members of the Risk Communications Committee are also members of the National IDSR committee that oversees every aspect of public health event prevention, detection and response. The Risk Communications Committee has recently been trained, and refresher trainings are being planned.

While traditional media—such as radio—has wide coverage and is used to assist in rumour management, new channels of risk communication have been activated, especially following the 2017 plague outbreak preparedness. These include a number of social media channels.

Communications with communities are aided by district health councils that include priests, councillors, local people of influence, and others.

Recommendations for priority actions

- Provide communications training on the all hazards and One Health approaches for managers, senior officials in government and other relevant senior staff.

- Review the multi-hazard and multi-sectoral risk communications strategy and plan to ensure that it reflects the One Health approach.

- Work with policy makers to provide budget lines for communications infrastructure (including a communications centre in the PHEOC); access to software for designing information, education and communication (IEC) materials; and access to the required hardware and other assets (phones, data, etc.).

Indicators and scores

R.5.1 Risk communication systems (plans, mechanisms, etc.) - Score 3

Strengths/best practices

- A Risk Communications Committee has been constituted and is manned by motivated staff supported by training and resources.

- The Seychelles communication strategy for plague preparedness and response was developed and implemented in good time, and is currently allowing multi actor scaling.

Areas that need strengthening, and challenges

- Seychelles should expand and strengthen the use of new communications methods, such as social media.

- A monitoring and evaluation process should be developed to provide feedback on the impact of the programme and allow continuous improvement.

R.5.2 Internal and partner communication and coordination - Score 4

Strengths/best practices

- The respective functions of ministries, departments, agencies and other stakeholders are clearly defined, which made it easy to form a multisectoral working group for risk communications. This working group created a scaled up national plague risk communication plan which was collectively implemented by all members of the working group.

- Health authority presence on popular media platforms allows two-way communications.

- First line responders and media houses have been trained in risk communications.

Areas that need strengthening, and challenges

- All involved parties (ministries, departments, agencies and other stakeholders) should be supported in creating dedicated desks and staff to further institutionalize the processes coordinated through the communication committee.

- The internal communication channels of ministers and high-level officials remain independent of the communication committee.

- SOPs need to be developed for information hotline volunteers.

- Members of the Risk Communications Committee are task shifting and using personal resources (such as phones), making it difficult to ensure all activities are of a high quality standard.

- Coordination with animal health, environment and other sectors could be improved to ensure a One Health approach to risk communications.

- Getting internal communication to trickle down to field workers has been a challenge.

RESPOND

R.5.3 Public communication - Score 5

Strengths/best practices

- The small population and very high literacy levels make it relatively easy for robust and responsive collaboration to provide health advice and address concerns and rumours.

- Public health media channels have wide reach and influence.

- Personalization of responders' social media profiles with the #HiddenFaces campaign improved public perceptions during the plague outbreak, especially among the younger population.

Areas that need strengthening, and challenges

- Support to subnational structures in coordinating public communication functions can be improved.

- The small population can also be a challenge, because rumours can spread quickly.

- Public communications functions need better funding for guaranteed implementation.

- An all-hazards approach is required for risk communications.

R.5.4 Communication engagement with affected communities - Score 4

Strengths/best practices

- A clear structure exists for coordinating communications around multiple stakeholders.

- There is regular briefing, training and engagement of social mobilization and community engagement teams, including volunteers. Mechanisms to scale up are operational.

- A feedback loop based on listening to community engagement is in place, is operational, and was tested by the plague outbreak.

Areas that need strengthening, and challenges

- The Communication Centre should be created and funded to ensure national and subnational levels can coordinate adequately.

R.5.5 Dynamic listening and rumour management - Score 3

Strengths/best practices

- Event based systems are in place for listening, through monitoring print and electronic media and logging rumours in the community.

Areas that need strengthening, and challenges

- Health workers' access to messages should be improved, especially for those interacting with communities, in order to ensure timely, uniform messaging (sometimes the community gets messages from the central level before peripheral health workers do).

- The impact of the communications strategy should be regularly evaluated.

- Multi-event, year-round dynamic event monitoring is required at community level (and should include procurement of software for event-based surveillance). Although this can be resource intensive, Seychelles needs to look critically at sustainable models, and can collaborate with partners for support.

- Mobile phone providers could be approached to provide free closed user group SIM cards for health workers as part of their Corporate Social Responsibility (CSR) programmes.

OTHER IHR-RELATED HAZARDS AND POINTS OF ENTRY

Points of entry

Introduction

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

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

Republic of Seychelles: level of capabilities

The Seychelles Port and Airport Health Unit was established in May 1996. The Airport Health Unit has been offering a 24-hour service since then, whereas the Seaport Unit began offering a 24-hour service in 2006.

The country has four recognized points of entry (POE): the Seychelles International Airport; Victoria Harbour; Assumption Harbour; and Praslin Harbour. Of these, Seychelles International Airport and Victoria Harbour are designated POE under the IHR (2005).

An average of 50 shipping vessels and 1400 aircraft are cleared every month. The key stakeholders are Immigration, Customs, aircraft and shipping handling agencies, the Seychelles Civil Aviation Authority, Police/Port Security, the NBA and the Health Care Agency.

There is an efficient system through which ill travellers can access appropriate medical services at the main referral health facility, which is close to both designated POE. Should quarantine become necessary, the accommodation facility designed to house illegal immigrants for deportation has been designated for that use.

A procedure is in place for importation of live animals, including pre-import certification and quarantining of small animals upon arrival in a facility within the city. There is, however, no veterinary inspector stationed at the points of entry.

Health and Safety Officers conduct environmental inspections. These are sometimes done jointly with Public Health Officers. The PHA (Vector Control Unit) has a specific programme for the control of vectors and reservoirs at points of entry.

The public health emergency contingency plan for responding to emergencies at Seychelles International Airport is integrated with the National Public Health Emergency Response plan. It covers all relevant agencies at the airport, but it does not cover all hazards. A similar plan needs to be established for Victoria Port.

There is direct communication between designated points of entry and the PHA, the Emergency Service Centre, and the nearest health facilities. Transportation time from POE to the main referral facility is between five minutes (from the sea port) and 15 minutes (from the airport).

Recommendations for priority actions

- Conduct an evaluation of all designated points of entry, using the WHO Assessment Tool for Points of Entry.
- Develop a public health emergency contingency plan for Victoria Port.
- Design and implement an exercise programme for the public health emergency contingency plan at Seychelles International Airport.

Indicators and scores

PoE.1 Routine capacities are established at points of entry - Score 4

Strengths/best practices

- An inspection programme is in place to ensure a safe environment at POE facilities.
- There is a functioning programme for the control of vectors and reservoirs in and near POE.
- Joint inspections are conducted with other relevant government and non-government agencies at POE, and also in food establishments.
- A monthly survey/fogging programme is in place, covering about 400m of the airport/seaport perimeter.
- The postal services are seen as POE when considering the potential introduction of health hazards.

Areas that need strengthening, and challenges

- Periodic study trips should be conducted to other countries to learn best practices.
- An all-hazard contingency plan is required for designated points of entry.

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

Strengths/best practices

- Trained personnel are in place for the inspection of conveyances at designated POE.
- A 24-hour service is offered at both designated POE.
- Screening for International Certificates of Vaccination or Prophylaxis is carried out in collaboration with immigration authorities.
- Outer harbour health clearance is carried out for all shipping vessels.
- Shipping vessels are quarantined in the anchorage for remedial actions.
- Supervised disinsection, de-ratting and disinfection of conveyances is carried out.
- Ship sanitation control/exemption certificates are issued.
- All aircraft are re-sprayed on the ground if it is detected that spraying procedures have not been followed properly according to the blocks away method.

Areas that need strengthening, and challenges

- The Public Health Emergency Contingency plan for the airport needs to be revised to make it a multi-hazard plan.
- A Public Health Emergency Contingency plan is needed for Victoria Port.
- Samples from vectors identified at POE should be taken for further laboratory investigation for possible aetiologic agents.

Chemical events

Introduction

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

Target

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

Republic of Seychelles: level of capabilities

The government of Seychelles recognizes the existence of chemical threats to health security, and is working towards establishing minimum capacity for prevention, detection, assessment and response concerning chemical events. The country developed a Pesticide act in 1996, and is a signatory to international agreements/conventions on chemical safety. These include the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals in International Trade (signed in 1998); the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (2002); and the Stockholm Convention on Persistent Organic Pollutants (2008). A draft National Action Plan on Chemical, Biological, Radiological and Nuclear (CBRN) hazards was developed in June 2015. The Strategic Approach to International Chemicals Management (SAICM) is partially implemented in Seychelles.

Hospital services provide treatment and medical management free of charge—as was illustrated by a 2015 incident of ammonia exposure, which was dealt with effectively through collaboration between relevant sectors.

Laws and regulations pertaining to the prevention, detection of and response to chemical events are fragmented. The DRDM and the Fire Safety Department are charged with responding to chemical events, but their respective roles and responsibilities on this matter are not clearly defined. There is a need to establish a lead institution or agency with clearly defined roles and responsibilities during chemical events.

Recommendations for priority actions

- Identify the lead agency for chemical events and clarify and formalize the related roles and responsibilities of each agency.
- Conduct a chemical safety assessment and inventory of chemicals in Seychelles.
- Develop a guideline on chemicals surveillance, assessment and management, with an associated training package.

OTHER

Indicators and scores

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

Strengths/best practices

- Consumer products—including foodstuffs and goods—are monitored for chemical hazards.
- In 2015 Seychelles successfully detected and responded to a chemical incident involving ammonia exposure.
- The DRDM and the Fire Safety Department are designated as responsible for chemical events response.

Areas that need strengthening, and challenges

- There is no designated lead agency for chemical events.
- The roles and responsibilities of each relevant agency in chemical events are not clearly defined and/or formalized.
- There are no guidelines on chemicals surveillance, assessment and management, and no associated training packages.
- Seychelles has inadequate laboratory capacity to test water, air and soil for chemicals.

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

Strengths/best practices

- A plan has been developed to implement the SAICM.
- An Environment Protection Act has been developed.
- There is a dedicated national budget for chemical events response.

Areas that need strengthening, and challenges

- There is no legal framework that provides comprehensive coverage of chemical hazards.
- The existing national emergency preparedness and response plan does not have provision for chemical events.
- There is no multisectoral coordination mechanism for chemical safety.

Radiation emergencies

Introduction

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

Target

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

Republic of Seychelles: level of capabilities

Radiation safety in Seychelles is covered under the Radiation Safety and Security Act 2014.

The national Radiation Protection Unit is located in the Department of Employment, and conducts inspections of medical and industry facilities wishing to use equipment that generates radiation. Under the Act, all facilities using such equipment must have an emergency response plan in order to be granted the necessary registration and permits to use the equipment.

Inventories of these facilities are done regularly. At time of writing in early 2018, the most recent was conducted in September 2017. During inspections, action points for improving safety and working methods are highlighted to staff. Details of these inventories are shared with the Ministry of Foreign Affairs, which oversees compliance with treaties and conventions.

Despite the Act and mechanisms for registration, Seychelles has no policy for radiation safety and security. The Act contains clauses for emergency response, and the Regulations supporting the Act are in draft at time of writing. Once these regulations are completed, the Emergency Response Plan can be developed.

There are no radioactive sources in any of the equipment currently registered for use in Seychelles, and therefore decommissioning of equipment and disposing of radiation sources is not covered under the Act.

Seychelles is a signatory of many International Atomic Energy Agency (IAEA) treaties. These include: Statute of the International Atomic Energy Agency, 1956; Amendment of Article XIV.A if the Statue of the IAEA, 1999; Treaty on Non-Proliferation of Nuclear Weapons; Agreement between the Republic of Seychelles and the IAEA for the Application of Safeguards in Connection with the Non-Proliferation Treaty and Small Quantities Protocol; Model Protocol Additional to the Agreement for the Application of Safeguards; Amendments to the Small Quantities Protocol 2006; Comprehensive Nuclear Test Ban treaty, 1996; Convention on the Physical Protection of Nuclear Material and Nuclear Facilities; International Convention for the Suppression of Acts of Nuclear Terrorism; and the revised Supplementary Agreement Concerning the Provision of Technical Assistance by the IAEA to the Government of the Republic of Seychelles.

In the future, components of emergency preparedness and response will be covered under the regulations being developed to support the Radiation Safety Act 2014.

All staff working in x-ray facilities have dosimeters, which are checked regularly. There are protocols in place for managing staff who have exceeded acceptable levels.

OTHER

At the time of the evaluation, the Seychelles in is the process of becoming a signatory to the Convention on Assistance in Case of Nuclear Accident or Radiological Emergencies.

Recommendations for priority actions

- Develop SOPs for coordination and communication between all national authorities responsible for radiation emergencies, including DRDM, MOH and the IHR NFP.
- Develop a national strategic plan for radiation emergency detection, assessment and response.
- Develop a protocol for using the Convention on Assistance in Case of Nuclear Accident or Radiological Emergencies.
- Conduct training and exercises for first responders to radiation emergencies.

Indicators and scores

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

Strengths/best practices

- Seychelles is a signatory to many international conventions on radiation.
- A Radiation Protection Unit exists within the Department of Employment.
- There is close monitoring of all staff using dosimeters, with SOPs for management of over-exposed staff.
- An emergency response plan is in development.

Areas that need strengthening, and challenges

- A risk assessment of potential radiological emergencies is difficult to conduct, as any source of radiation would be external to the country.
- There is a lack of experience and expertise in radiation emergencies.

RE.2 Enabling environment is in place for management of radiation emergencies - Score 1

Strengths/best practices

- Seychelles is in the process of becoming a signatory to the Convention on Assistance in Case of Nuclear Accident or Radiological Emergencies.
- A generic emergency response plan is in place within the DRDM.

Areas that need strengthening, and challenges

- Coordination and information sharing between the Radiation Protection Unit and the DRDM should be improved.
- Once the Convention on Assistance in Case of Nuclear Accident or Radiological Emergencies is signed, all stakeholders should be made aware of the provisions and protocols on engaging with the convention.

Appendix 1: JEE background

Mission place and dates

Beau Vallon, Mahé, Republic of Seychelles

5-9 March 2018

Mission team members:

- Team Lead: Anderson Latt, WHO Regional Office for Africa
- Team Co-Lead: Adrienne Rashford, WHO Headquarters

- Michael Adjabeng, Ghana Ministry of Health
- Emmanuel Agogo, Nigeria Centre for Disease Control
- Balla Jatta, Gambia Ministry of Health & Social Welfare
- Ibrahim Mamadu, WHO Regional Office for Africa
- Mark Nunn, independent technical writer and editor
- Zelalem Tadesse, Food and Agriculture Organization of the United Nations

Objective

To assess the Republic of Seychelles' capacities and capabilities relevant to the 19 technical areas of the JEE tool, for providing baseline data to support Seychelles' 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 experts, 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 Republic of Seychelles will not be independently verified but will be discussed and the evaluation rating mutually agreed to by the host country and the evaluation team. This is a peer-to-peer review.

Key host country participants and institutions

- Mazar Afaq — Health Care Agency
- Ibrahim Afif — Chief Executive Officer Media Commission
- Ronny Alcindor — Chief Executive Office Seychelles Port Authority
- Ms. Amelie — Department of Employment
- Christian Annasse — Health Care Agency
- Lana Azemia — Seychelles Civil Aviation Authority
- Diana Belle — Customs Organization
- Jastin Bibi — Disease Surveillance Response Unit (Public Health Authority)
- Florida Bijoux — Health Care Agency
- Leon Biscornet — Public Health Authority
- Anita Bonne — Disease Surveillance Response Unit (Public Health Authority)
- Anselma Cafrine — Health Care Agency
- Beryl Camille — University of Seychelles rep
- Daniel Cetoupe — Department Risk and Disaster Management
- Agnes Chetty — Ministry of Health
- Garry Course — Public Health Authority
- Lucille De Comarmond — Health Care Agency
- Geralda Didon — Public Health Authority
- Abdul Aziz Ebrahim — Health Care Agency
- Peter Estico — Senior Project Officer for Emergency and Environment Community Development
- Kevin Fabien — National Institute of Science Technology
- Sister Anne Faure — Health Care Agency
- Marthe Faure — Seychelles Civil Aviation Authority
- Naomie Ferguson — Communicable Diseases Control Unit (Public Health Authority)
- Tenin Gakuruh — World Health Organisation Liaison Officer
- Jude Gedeon — Public Health Authority
- Shobha Harjarnis — Ministry of Health
- Tessa Henderson — Secretary Media Commission
- Keneth Henriette — Health Care Agency
- Philomena Hollanda — Department of Tourism
- Doreen Hotive — WHO
- Simon Julienne — Public Health Authority
- Barun Kumar Saha — Health Care Agency
- Brigitte Labonte — Ministry of Education

- Naomi Laurence   Public Health Authority
- Meggy Louange   Director General Public Health Authority
- Danny Louange   Health Care Agency
- Judith Louis   Department of Attorney General, Ministry of Finance
- Maryline Lucas   NIHSS
- Lt Colonel Vincent Luther   Seychelles Peoples Defence Forces
- George Madeleine   Ministry of Health
- Jeanine Maria   Seychelles Police Department
- Marie May Muzungaile   Director General, Biodiversity, Conservation & Management Division
- Mr. Murthy   Private Medical Association
- Jimmy Melanie   National Biosecurity Agency (Animal health)
- Sandra Micheline   Department of Foreign Affairs (IAEA)
- Louine Morel   Communicable Diseases Control Unit (Public Health Authority)
- Keven Nancy   National Biosecurity Agency (Biosecurity)
- Rodney Philo   Director Public Health Services (Public Health Authority)
- Doloress Pool   Health Care Agency
- Regina Prosper   Department Risk and Disaster Management
- Kinabo Prosper   Health Care Agency
- Chantal Rath   Disease Surveillance Response Unit (Public Health Authority)
- Colette Servina   Red Cross of Seychelles
- Conrad Shamlaye   Chairman for Public Health Authority Board
- Nicholas Shamlaye   Health Care Agency
- Randy Stravens   Ministry of Agriculture (Plant Health)
- Nancy Tomking   Ministry of Health
- Beven Vidot   Ministry of Environment

Supporting documentation provided by host country

National legislation, policy and financing

- Public Health Authority Act, 2013
- Food Act, 2014
- Public Health Act, 2015
- Quarantine Act, 2012.

IHR coordination, communication and advocacy

- OIE Reports (World Animal Health Information System/WAHIS)
- IHR reports to the World Health Assembly

- Legislation, protocols or other policies related to reporting to WHO

Antimicrobial resistance

- MRSA Guidelines for healthcare personnel; an IPC document for healthcare workers, September 2010; Ministry of Health, Victoria, Seychelles
- IPC Training Facilitator's Guide; Ministry of Health, Victoria, Seychelles, 2014
- IPC Guidelines for monitoring and surveillance; 2014, Ministry of Health, Victoria, Seychelles
- Antimicrobial Resistance National Action Plan (draft) Outputs from situational analysis workshop 8-10 May 2017; Ministry of Health, Victoria, Seychelles.

Zoonotic diseases

- Animal and Plant Biosecurity Act 2014
- Public Health Act 2015
- OIE PVS Evaluation 2011
- OIE PVS Gap Analysis 2014
- OIE Veterinary Legislation Report 2016

Food safety

- National Food Act 2014
- Open Air Food Vending Policy
- The Codex Alimentarius ("Food Code")

Biosafety and biosecurity

- Public Health Act
- Animal and Plant Biosecurity Act 2014
- Broad National Biosecurity policy
- SPHL Safety Manual, WHO Biosafety Manual
- NBA 2015-2019 strategy

Immunization

- Comprehensive Multi-Year Planning 2008-2013 and 2014-2018
- Effective Vaccine Management Report, Nov 2014
- Cold Chain Inventory Report, Nov 2017
- Comprehensive EPI and Surveillance report, April 2017
- New Vaccine Introduction Plan 2010-2017 (Hib, HPV, IPV Rota and PCV)
- Post Introduction Evaluation of HIB and HPV vaccine 2010-2014
- Coverage Survey and KAP Study Report 2017
- Draft of SOPs for Vaccine Management, Oct 2017

- SOPs for Adverse Events Following Immunization, Nov 2017
- Copy of stock management tools (vaccination stock card, SMT, wastage monitoring card).

National laboratory system

- Public Health Act
- Occupational Health Decree
- Food Act
- SPHL ISO9001:2008 QMS Quality Procedures, Quality Manual and SOPs
- CL Global SOPs for ISO 15189
- Health Care Act
- CL Annual report 2017

Real-time surveillance

- Public Health Act
- IDSR Guidelines
- Copy of weekly epidemiological bulletin

Reporting

- Public Health Act, 2015
- IDSR Guidelines 2011

Workforce development

- Nurses and Midwives Act, 1985, Caps 150
- Health Professionals Act 2006
- Seychelles Medical and Dental Council Act
- ANHRD National Plan
- National Health Strategic Plan 2016-2020, chapter on investment in human development
- Master training plan for health workers
- Health Department Secretariat (HDS) Annual Report 2016
- Draft Seychelles National Health Policy (2015)
- Seychelles National Health Strategic Plan (2016-2020)
- Seychelles Country Cooperation Strategy 2016-2021

Preparedness

- IHR(2005) Monitoring and Evaluation Framework
- Public Health Act 2015
- Disaster Risk Management Act 2014
- Seychelles Integrated National Emergency Plan 2016

Emergency response operations

- Seychelles Disaster Risk Management Act
- National Integrated Emergency Response Plan
- National Colour Code
- Mont Fleuri District Contingency Plan (as example of district plans)
- Simulation exercise reports.

Linking public health and security authorities

- Public Health Authority Act 2013
- Public Health Act 2015
- Defence Forces Act 1981
- Police Force Act 1959

Medical countermeasures and personnel deployment

- Seychelles essential drug list
- Protocol for registration of doctors
- Protocol for registration of nurses
- Protocol for registration of other health professionals
- Ebola preparedness plan
- Plague preparedness plan
- Draft Pharmacy Bill

Risk communication

- Public relations, communication, information and education (policy and procedures) – Ministry of Health and Social Development
- Emergency Risk Communication SOPs
- Communication strategy for plague preparedness and response, October 2017

Points of entry

- Quarantine Act
- Airport Emergency Plan
- Public health procedure for boarding aircraft
- Public health procedure for disinsecting aircraft—blocks away method
- Procedure for importation of mortal remains
- Seaport/Airport Health registry - access format
- Health questionnaire for seafarers
- SOPs for vector control
- Seaport and airport health work programme

- Vector control unit programme for POE

- Specific Ebola guidelines for POE

- Specific plague guidelines for POE

Chemical events

- SAICM

- Pesticide Act 1996

Radiation emergencies

- Radiation Safety and Security Act 2014

- Radiation Safety and Security Regulation (draft stage)

- Radiation Safety and Security Guidelines