

# **JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES**

of the  
**REPUBLIC OF THE UNION OF MYANMAR**

Mission report:  
**3-9 May 2017**



**World Health  
Organization**



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## Abbreviations

<b>AFP</b>	acute flaccid paralysis
<b>AMR</b>	antimicrobial resistance
<b>CBRN</b>	chemical, biological, radiological & nuclear
<b>CDC</b>	United States Centres for Disease Control and Prevention
<b>CEU</b>	Central Epidemiology Unit
<b>CVDPV</b>	Circulating Vaccine Derived Poliovirus
<b>DAE</b>	Division of Atomic Energy
<b>DMR</b>	Department of Medical Research
<b>DoPH</b>	Department of Public Health
<b>EOC</b>	emergency operation centre
<b>EPI</b>	expanded programme on immunization
<b>EQA</b>	external quality assessment
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>FDA</b>	Food & Drug Administration
<b>FETP</b>	Field Epidemiology Training Programme
<b>Gavi</b>	the Vaccine Alliance
<b>HCAI</b>	health care associated infections
<b>HLPU</b>	Health Literacy Promotion Unit
<b>IAEA</b>	International Atomic Energy Agency
<b>IHR</b>	International Health Regulations 2005
<b>ILI</b>	influenza like illness
<b>IPC</b>	infection, prevention and control
<b>LBVD</b>	Livestock Breeding & Veterinary Department
<b>MBDS</b>	Mekong Basin Disease Surveillance
<b>MoHS</b>	Union Ministry of Health and Sports
<b>MoI</b>	Union Ministry of Information
<b>MOU</b>	memorandum of understanding
<b>MPH</b>	Master of Public Health
<b>NDMC</b>	National Disaster Management Committee
<b>NGO</b>	Non- governmental organization
<b>NHL</b>	National Health Laboratory
<b>OHEH</b>	Occupational Health & Environmental Health
<b>OIE</b>	World Health Organisation for Animal Health
<b>PHEIC</b>	public health emergency of international concern
<b>PHEOC</b>	public health emergency operation centre
<b>PHL</b>	Public Health Laboratory
<b>POC</b>	point of care
<b>PTC</b>	poison treatment centre
<b>RRT</b>	rapid response team
<b>SOP</b>	standard operating procedures
<b>UNICEF</b>	United Nations International Children's Emergency Fund
<b>VPD</b>	vaccine preventable diseases
<b>WHO</b>	World Health Organization

# Executive summary

The Republic of the Union of Myanmar is divided into 15 administrative units: 7 states ,and 7 regions and Nay Pyi Taw Union Territory. It had an estimated total population of 51 million in the 2014 census. There are approximately 135 ethnic groups with the majority of the population being Buddhist with Christian, Hindu, and Muslim minorities.

It is the third country in the South-East Asia region to conduct a Joint External Evaluation (JEE), which took place in Nay Pyi Taw in May 2017. The official request was made to the World Health Organization (WHO) in January 2017. The mission consisted of a multisectoral international team made up of individuals from different countries with recognized expertise in their field. Support was also given by technical advisors from the Food and Agriculture Organization of the United Nations (FAO), Public Health England (PHE), Public Health Agency of Sweden, Centres for Disease Control and Prevention (US-CDC) and the Ministry of Health Sri Lanka.

Technical presentations led by the Ministry of Health and Sports (MoHS) were given by the multi sectoral Myanmar team focusing on the self-assessment they had conducted followed by a joint multisectoral discussion. The joint recommendations that followed emerged from this process; supported by various field visits. The team of experts visited the National Health Laboratory, Yangon seaport, the Livestock Breeding and Veterinary Department (LBVD) Laboratory and Yangon International Airport.

## Overarching issues and priority recommendations:

### Legislation and Formalized Procedures:

Myanmar has several laws, guidelines, regulations, and standard operating procedures (SOP) and has recently drafted its National Health Plan 2017-2021. This aims to update and amend the Prevention and Control of Communicable Diseases Law 1995, later amended in 2011, and the Public Health Law of 1972. Although referred to in various presentations, the team of experts noted that many documents like SOPs and guidelines remain in draft stage and major pieces of legislation are either imminent or still pending. Their finalization and endorsement is essential in assisting Myanmar in fulfilling its IHR (2005) obligations.

In food safety, Myanmar follows the Codex Alimentarius Guidelines and operates its own rapid response teams (RRT) to manage incidents of suspected food outbreaks. However, one of the priority actions here was for a legal document to ensure adequate food safety standards and management to effectively control and monitor all stakeholders involved in food. In the technical area of risk communication, although Myanmar has the National Disaster Coordination Committee it was noted that there was no formalized all hazard risk communication law or plan that is coordinated and communicated to all stake holders including the private sector. Another example was in chemical events and radiation emergencies, where experts recommended the finalization and approval of the Chemical, Biological, Radiological & Nuclear (CBRN) Contingency Plan to ensure clarification of authorized bodies, roles, and responsibilities for the surveillance alert, and response to chemical events,.

The experts commended the Myanmar team's presentations and the comprehensive supporting documentation provided. It was evident that a major piece of legislation was still pending. Once implemented and supported with relevant SOPs and further guidelines, many of the points raised in the various priority actions with regards to legalisation, regulations, plans and guidelines will be addressed. This will give Myanmar a framework to work within.

## Linking Human and Animal Health:

There were well established working procedures in some of the technical areas between human and animal health. However, there was a recurring theme in the recommendations for closer liaison, collaboration and sharing of information between the two to create a one health approach.

Myanmar, for example, has the National Health Laboratory (NHL) which can conduct 10 core tests. The NHL and the Public Health Laboratory (PHL) are both reference laboratories for the human sector. However, there appeared to be no collaboration with the animal laboratories. As laboratories are the key to saving lives through early detection of infectious diseases, collaboration, and incorporation of a one health approach between the animal and human sector, is crucial. In this respect, the role of public health laboratories is crucial as they are the focal point for a national system through their functions for human, veterinary and food safety including disease prevention, control, and surveillance.

In the technical area of food safety one of the priority recommendations called for a formalized and regular linkage between the human and animal sector, especially in the investigation of contamination. The strengthening of the contribution of the veterinary sector in the implementation of the IHR (2005) is pivotal in the development of roadmaps at the human and animal interface. In antimicrobial resistance (AMR), experts highlighted the need for an increased AMR capacity for both human and animal sectors and improved surveillance within the animal sector. Inclusion and collaborative working with the animal sector was reflected in many other priority recommendations.

The availability of a qualified and experienced workforce is crucial in addressing some of the recommendations in the JEE. In this respect, there were priority recommendations for a comprehensive training needs assessment.

## The Minister's Response: the way forward

The JEE was undertaken by the MoHS that oversees Myanmar's health services through seven departments; the Departments of Public Health, Medical Services, Food and Drug Administration, Medical Research, Traditional Medicine, Health Professional Resource Development and Management, and Sports and Physical Education.

The Union Minister, as the lead of this initiative, welcomed the JEE team in his welcome speech and was clear from the onset to hold an open, honest, and transparent evaluation. He was receptive to receiving and acting on the recommendations and was aware that there would be changes required. The JEE findings served as an important tool for Myanmar's own development and for the improvement of IHR (2005) capacities. His Excellency talked of issues and challenges that would be uncovered during discussions but showed real commitment and determination in addressing these through a step by step approach. The process was seen as being important not only for Myanmar but for the neighbouring countries such as Bangladesh and India.

During his closing speech, the Union Minister acknowledged the importance of inter-ministerial cooperation in fulfilling the IHR requirements. Moreover, he added that the emphasis should not be on the score, but on the expert's recommendations and how to achieve progress.

Apart from analysing the recommendations, the Minister reassured the audience how improved communication between all relevant ministries could be easily achieved, thereby addressing one of the key findings of the JEE and cited collaboration with the veterinary sector as an example.

In terms of looking forward, Myanmar can boast of a leadership with an in-depth understanding of the IHR requirements, the JEE process and a commitment and undertaking to address the recommendations with a clear vision of a plan that entails working with partners such as WHO, US-CDC, FAO and OIE.

Above all the Union Minister stressed the importance of working with and promoting young professionals in the country as the future generation responsible for running these programmes in the coming years.

# Myanmar scores

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

<sup>1</sup> FETP: field epidemiology training programme

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

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

# PREVENT

## National legislation, policy and financing

### Introduction

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

### Target

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

### Myanmar level of capabilities

Myanmar has laws, regulations, SOPs, guidelines, plans and Standing Orders governing public health surveillance and response. The pertinent ones among them being the Prevention and Control of Communicable Diseases Law of 1995 which was amended in 2011; the Public Health Law of 1972; the Animal Health and Development Law of 1993; the Natural Disaster Management Law of 2013, and the National Food Law of 1997.

Myanmar has recently released their National Health Plan 2017-2021 and has drafted the revised Prevention and Control of Communicable Diseases Law and the Public Health Law. Myanmar followed guidelines and conducted meetings and workshops to assess their old laws to assist in the drafting of these revised laws which, at the time of the evaluation, is being considered by Parliament for endorsement. These revised plans however, do not explicitly have legislation and regulations that would accommodate strengthening the IHR capacities.

Myanmar is part of the Mekong Basin Disease Surveillance (MBDS) network. The Memorandum of Understanding (MoU) was signed in 2001 by six Ministers of Health of the countries in the Greater Mekong sub-region: Cambodia, China (Yunnan and Guangxi), Lao People's Democratic Republic, Myanmar, Thailand, and Vietnam. The main areas of focus of the network are to: i) improve cross-border infectious disease outbreak investigation and response by sharing surveillance data and best practices in disease recognition and reporting, and by jointly responding to outbreaks; ii) develop expertise in epidemiological surveillance across the countries; and iii) enhance communication between the countries.

Myanmar has an emergency fund that can be released upon declaration of an emergency.

## Recommendations for priority actions

- Myanmar should ensure that the revised laws and regulations that the country has prepared, support strengthening IHR capacity implementation in the country for both human and animal health.
- Myanmar to continue the good practice of having cross border local MoUs with Thailand and extend this to other neighbouring countries.

## Indicators and scores

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

#### *Strengths/best practices*

- Myanmar has laws, regulations, SOPs, guidelines, plans and Standing Orders governing public health surveillance and response.
- The Ministry of Health and Sports (MoHS) has launched the National Health Plan for 2017 to 2021.
- Myanmar developed Communicable Disease law in 1995 which is now being revised including IHR implementation at Points of Entry.
- Myanmar has the Animal Health and Development Law (1993) and the Natural Disaster Management Law (2013); the National Food Law (1997); the Poisons Law (1919); the Myanmar Marine Fisheries Law (1990) and the Law Relating to the Fishing Rights of Foreign Fishing Vessels (1989).
- There is Cross-border Cooperation for IHR between Myanmar and Thailand. Myanmar is in the MBDS network.

#### *Areas that need strengthening and challenges*

- Though there are laws, relevant legislation, regulation, and administration requirement, they do not strongly support the strengthening of IHR capacities in the country.
- Coordination mechanism between the variety of sectors/players could be improved.

### P.1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR (2005) – Score 2

#### *Strengths/best practice*

- There is evidence of using relevant legislation and policies in various sectors involved in the implementation of IHR. The country also has legislation that addresses specific areas other than National Focal Point (NFP) functions.
- The country ensures coordination of the legal and regulatory frameworks between sectors. In addition, Myanmar has legislation and regulations that address specific areas other than National Focal Point (NFP) functions such as livestock breeding and veterinary; administration; relief and resettlement; food and drug administration; home affairs; atomic energy; environmental conservation; disaster management; chemical, biological, radiological, and nuclear (CBRN); and commerce and transport.

#### *Areas that need strengthening and challenges*

- Though Myanmar can demonstrate its adjustment and alignment of domestic legislation, policies, and administrative arrangements to enable compliance with the IHR (2005), they are not formally depicted in the existing or the revised draft laws that are being prepared for parliament.
- Relevant legislation, regulation, administrative requirements, and other government instruments should facilitate strengthening and implementation of IHR (2005).

# IHR coordination, communication and advocacy

## Introduction

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

### Target

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

## Myanmar level of capabilities

Myanmar has legislation and policies for the implementation of IHR. The country has a National Steering Committee for IHR (2005) which has 10 sub-committees; however, this does not meet routinely. There is no separate IHR committee.

There are also Coordination Meetings among organizations for Public Health Emergencies of International Concern (PHEICs) (Ebola, Zika) and sharing of Information among State/Region, District, and Townships departments of Animal and Human Health. Press releases, mass media, workshop and reports are also conducted routinely.

Myanmar has Standard Operating Procedures (SOPs) and guidelines for various events and diseases (Non- Communicable and Communicable Diseases) and some of these SOPs are mentioned under the coordination mechanism between IHR and respective relevant sectors. It is important to include IHR and the coordination mechanism in the upcoming revision of communicable diseases law.

Myanmar has coordination mechanism within relevant ministries on events that may constitute public health event or risk of national/international concern. Myanmar also has SOPs or guidelines available for coordination between NFP and other relevant sectors. There are separate mechanisms in place for chemical and radio-nuclear events. However, these mechanisms are inadequately linked with IHR/NFP.

Functional mechanisms exist for inter-sectoral collaboration that includes animal and human health surveillance units and laboratories.

## Recommendations for priority actions

- Establishment of an overarching cross government steering committee to oversee global health security activities through an all hazards approach.
- Development of multi-sectoral, multidisciplinary coordination and communication mechanisms; and joint action plans through this overarching committee.

## Indicators and scores

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

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

- There is coordination within relevant ministries on PHEICs in Myanmar.
- SOPs or guidelines are available for coordination between the NFP and other relevant sectors. Functional mechanisms for inter-sectoral collaboration that include animal and human health surveillance units and laboratories have been established in Myanmar.
- There is timely and systematic information exchange between animal and human health surveillance units, laboratories, and other relevant sectors but this is not consistent.
- Updates of IHR implementation are shared with other relevant sectors. The functions of the IHR NFP have been evaluated for effectiveness.
- There are also functional mechanisms for inter-sectoral collaboration that include animal and human health surveillance units and laboratories that have already been established.
- There is also timely and systematic information exchange between animal and human health surveillance units, laboratories, and other relevant sectors regarding most potential zoonotic risks and urgent zoonotic events and sharing of information among State/Region, District, and Townships departments of Animal and Human Health.
- Information on IHR issues are shared with the media (e.g. Myanmar shared information of Ebola suspected cases in 2014; information of Zika patient in Yangon in 2016).

#### ***Areas that need strengthening and challenges***

- There is a need for an overarching coordinating committee which meets routinely and has oversight of national activities relating to global health security, including IHR.
- Need to strengthen multi-sectoral, multidisciplinary coordination and communication mechanisms for regular updates and tests.
- Action plans are needed to be developed and applied to incorporate lessons learnt of multi-sectoral/disciplinary coordination and communication mechanisms.
- Myanmar needs tools for coordination, a coordination mechanism between sectors and time frames for this.

# Antimicrobial resistance

## Introduction

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

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

## Target

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

## Myanmar level of capabilities

Myanmar expects parliamentary adoption of a National Action Plan for Containment of Antimicrobial Resistance before the World Health Assembly in May 2017. It is difficult to estimate the level of occurrence of AMR in the country due to lack of surveillance data. However, the authorities of Myanmar are fully aware of the future threat of AMR for the health of its citizens, for sustainable production of animal proteins and for the environment. One of the priorities is to raise awareness of AMR among the general public and professionals in the human and agricultural sector. AMR is not only a threat for human health, but can affect food security and Myanmar's economy as well as the agricultural sector which contributes almost 40% to the Gross Domestic Product. Some progress has been made with the drafting of a National Action Plan in consultation and cooperation from other stakeholders. The government now needs to use this momentum to advance progress. Regulation of the usage of antimicrobials is an important first step as antimicrobials are available almost everywhere over the counter for human and veterinary use. Integrated surveillance needs to be developed on AMR and usage of antimicrobials. Cooperation between the human health and veterinary sector needs strengthening and both sectors need to invest in human resources and education. General hygiene and good practice from farms to hospitals must be maintained to reduce the burden of diseases and to prevent excessive and unnecessary use of antimicrobials. AMR is a trans-boundary threat, making international cooperation necessary. Myanmar has set relevant first steps and needs full governmental support to further reduce the threat of this silent killer.

## Recommendations for priority actions

- Raise awareness among the public on AMR and among health care workers in human and animal health sectors on surveillance, prudent use of antimicrobials and the importance of good practices.
- Increase laboratory capacity on AMR, both in the human and animal health sector and share AMR data across the sectors.
- Cooperate in a One Health approach between sectors at local, regional, and national levels on AMR.

## Indicators and scores

### P.3.1 Antimicrobial resistance detection – Score 3

#### *Strengths/best practices*

- National Plan for AMR is drafted in a multi-stakeholder environment and ready for parliamentary approval within weeks of the evaluation mission and before the World Health Assembly in May 2017.
- Multi stakeholder engagement on AMR. Momentum is there to proceed.
- The NHL, Public Health Laboratory (PHL), central hospitals, teaching hospitals, state and regional hospitals, Central Animal Health Laboratory, can detect WHO priority pathogens and AMR pathogens, increasing the capacity for AMR detection and reporting.
- Collaboration take place with the National Centre for Global Health and Medicine, Japan, on molecular epidemiology of multi-drug resistant Gram-negative pathogens based on their whole genome sequencing (2015-2017) and collaboration with WHO for Antimicrobial Resistance (2015-2017).
- The NHL participates in international External Quality Assessment (EQA) Programmes for antibiotic sensitivity with the National Institute of Health -Thailand, and the Prince of Wales Hospital, Australia.

#### *Areas which need strengthening/challenges*

- AMR detection for both human and animal sector and national guidelines for AMR prevention and control need development.
- Infrastructure for AMR detection needs to be strengthened.
- Training for AMR detection need to be stepped up.
- Targeted human and financial resources are required.
- Communication and sharing of data in the human - animal - environmental interface.
- Legislation on usage of antimicrobials in the human and animal health sector needs to be developed.
- Development of a national standard antibiotic guidelines.

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

#### *Strengths/best practices*

- National Health Laboratory has a surveillance system for several infections caused by priority AMR pathogens.
- Twenty- five hospital laboratories and 3 veterinary laboratories can detect AMR pathogens.
- Collaboration with National Centre for Global Health and Medicine, Japan, for molecular epidemiology of multi-drug resistant Gram-negative pathogens based on their whole genome sequencing (2015-2017).
- Collaboration with WHO for Antimicrobial Resistance (2015-2017).
- Development of sentinel sites for AMR surveillance in the dairy sector.

### ***Areas which need strengthening/challenges***

- The National Plan for Surveillance of Infections caused by AMR Pathogens (for human, food, animal, and agriculture sectors) requires implementation.
- Infrastructure for AMR detection needs strengthening with human and financial resources.
- Surveillance of usage of antimicrobials in human and animal sector to be developed.
- The expansion of sentinel sites for AMR surveillance in the agricultural sector need to be extended to the aquaculture, poultry and pork sectors.
- Surveillance of AMR sentinel pathogens (Salmonella, Extended Spectrum Beta-Lactamase producing E. Coli) along the foodchain, from farm to fork, needs to be established.

### **P.3.3 Health care-associated infection (HCAI) prevention and control programmes – Score 1**

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

- Hospital infection control guidelines and National TB infection control manual (2nd edition) were developed in 2016 and 2017 respectively.
- The NHL prepared and distributed the Infection Prevention & Control (IPC) manual, and the Waste Management Manual to the public and private hospitals.
- Public and some private hospitals have Hospital Infection Control Committees to prevent HCAI and AMR.

#### ***Areas which need strengthening/challenges***

- Raise awareness on AMR among the general public and human and animal health care workers.
- National plan for healthcare associated infection programmes and guidelines for the protection of health care workers are required.
- Isolation units for AMR and designated trained IPC professionals in tertiary hospitals are required.

### **P.3.4 Antimicrobial stewardship activities – Score 1**

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

- National plan for antimicrobial stewardship is included in the National Action Plan for AMR.
- Specific disease treatment guidelines (TB, Malaria, HIV) and National List of Essential Medicines are available.

#### ***Areas which need strengthening/challenges***

- A national plan for antimicrobial stewardship, a national survey for antimicrobial consumption and National Standard Antibiotic Treatment Guidelines need to be developed and implemented.
- Proper administration of antibiotics and antibiotic usage patterns in the human and animal health sectors needs to be implemented.
- Endorse a new Drug Law and implement rules and regulations on the sale of antimicrobials only after prescription by medical and veterinary professionals.
- Develop a law to regulate the production of antimicrobials in a sustainable way, to protect the environment of drug producing factories and to control the quality of antimicrobials.

# Zoonotic diseases

## Introduction

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

### Target

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

## Myanmar level of capabilities

Since the outbreaks in Myanmar of H5N1 Avian Influenza in 2006, the Livestock Breeding and Veterinary department (LBVD) of the Ministry of Agriculture, Livestock, and Irrigation (MoALI) and the Department of Public Health (DoPH) have worked together to monitor and control outbreaks of zoonotic diseases. Since then, collaboration between the two sectors became more frequent and constructive. Out of a Tripartite, Food and Agriculture Organization, (FAO, OIE and WHO) initiative, a joint risk assessment for zoonotic events was formulated and this led to the drafting of the national One Health strategic framework and action plan of Myanmar (2016-2019). This framework still awaits approval and implementation. Cross sectoral cooperation will become increasingly essential to prevent, detect, and respond to disease outbreaks. Regional and international cooperation and transparency in data sharing is essential as zoonotic pathogens have no boundaries.

Myanmar has 5 priority zoonotic diseases (Rabies, Zoonotic Influenza, TB, Anthrax, Japanese Encephalitis) and AMR as a joint priority of public health and the food and agriculture sector. Due to the expected expansion of the livestock sector, intensification of production methods, climate change and the trans-boundary nature of zoonoses, the threat of zoonotic pathogens will increase. These expectations make the necessity to invest in the animal health sector and in coordination mechanisms with the public health sector, an urgent priority.

## Recommendations for priority actions

- Endorse and implement the national One Health strategic framework and action plan of Myanmar (2016-2019).
- Establish information sharing systems, joint simulation exercises and formal coordination mechanisms between LBVD and DoPH.
- Expand the animal health workforce and organize continuous education for the existing workforce on local, regional, and national levels.

## Indicators and scores

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

#### *Strengths/best practices*

- Surveillance systems in place for priority zoonotic disease pathogens linked to surveillance systems used for human pathogens for specific diseases like High Pathogenic Avian Influenza, Rabies, Anthrax, Japanese Encephalitis on an ad-hoc event basis.
- Significant expansion of the veterinary workforce after recommendation from the OIE PVS report (2009).
- Animal Health and Development Law (17/93) includes notifiable animal diseases.
- Data is shared with OIE on a 6-month basis and for notifiable diseases as soon as possible.
- Monthly report of the occurrence of priority zoonotic diseases in humans to Department of Public Health.

#### *Areas which need strengthening/challenges*

- Establishing formal policy for One Health in Myanmar. The National One Health Strategic Framework and Action Plan of Myanmar has been jointly drafted, but has not yet been adopted.
- Routine meeting or information sharing mechanisms.
- Linking Public health laboratories and animal health laboratories and sample sharing.
- Inter-ministries report sharing is quite limited. For instance, animal surveillance report was shared within only MoALI. Reports are not delivered to other ministries.
- Livestock census, planned for 2017, needed for a renewed strategy for expansion of veterinary workforce.

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

#### *Strengths/best practices*

- Joint public health training is offered to animal health veterinary staff within the country (e.g. Joint Field Epidemiology Training Programme (FETP) training; occupational health and safety training).
- Over 200 Veterinarians and 92.500 community animal health workers deliver animal health services within the national public health system in almost half of the sub-national levels.
- Training for controlling zoonotic disease in animal populations are offered to public health staff within the country e.g. Joint-risk assessment training for avian influenza.
- Simulation exercise for High Pathogenic Avian Influenza and Low Pathogenic Avian Influenza (HPAI/LPAI).

#### *Areas which need strengthening/challenges*

- Regular exercises and training between Department of Public Health and LBVD.
- Coordination and Collaboration between DoPH and LBVD can be improved.
- Absence of veterinary services staff at land border crossings.
- Border control of transportation of live animals and animal products needs improvement, but suffers from lack of trained veterinary workforce.

#### P.4.3 Mechanisms to respond to infectious and potential zoonotic diseases established & functional – Score 2

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

- Response activities well established and practiced across human and veterinary animal health.
- Avian Influenza outbreak and disease control exists at all levels, composed of human and veterinary health authorities and other relevant departments.
- Contingency plan for Low Pathogenic Avian Influenza (LPAI) and High Pathogenic Avian Influenza (HPAI).
- Mechanisms for responding to other infectious zoonoses and potential zoonoses follow avian influenza outbreak strategies.
- Plan for the response to zoonotic events is based on SOPs and experience from Avian Influenza outbreak control.
- Ad hoc compensation of farmers.
- Rapid Response Teams (RRTs) available on ad hoc basis at local, regional, and national levels.
- The capacity to respond to more than 80% of zoonotic events within two days.

##### ***Areas which need strengthening/challenges***

- No formal memorandum of understanding between all sectors for management of zoonotic events.
- National One Health Strategic Plan is waiting for formal approval and implementation.
- No surveillance on disease situation in wildlife.
- Reporting from farms about disease outbreaks is inadequate.
- No compensation mechanisms for farmers in place.
- Formal intersectoral response mechanisms required.
- Environmental and climatological circumstances that could enlarge risks for disease outbreaks to be better monitored.
- Links and reporting from private sector veterinarians.

# Food safety

## Introduction

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

### Target

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

## Myanmar level of capabilities

The MoH and MoALI are aware of their responsibilities to protect the people of Myanmar against unsafe food and outbreaks of foodborne diseases. However, due to lack of human and financial resources, a multi-sectoral food safety risk management strategy is lacking and Myanmar lacks a national food safety standard, but follows the Codex Alimentarius Guidelines. At the time of the evaluation mission, a new Food Safety Law is under development.

Response to several serious outbreaks of food borne disease events have been successful so far but nothing is actively planned to prevent these outbreaks which can cause illness, death, and severe economic losses. The rapid globalization of food production and trade will increase the potential likelihood of international incidents involving contaminated food. On a regional level Myanmar has organized RRTs. These teams operate on an ad hoc basis in case of a suspected food safety related disease outbreak which indicates that some form of response mechanism is in place. There are no routine links between human and animal health or environmental hazard/contamination investigations. Prevention of food borne disease outbreaks and quality control of food is not yet organized. Stakeholders are aware of the risk this situation poses and are keen and willing to improve the food safety situation in Myanmar. However, guidance, funding and human resources are required.

## Recommendations for priority actions

- Establish a multi-sectoral strategy for a national food safety management and surveillance system from farm to fork.
- Implement food safety control management systems based on multi-sectoral involvement in risk profiling of food safety incidents.
- Activate a transparent communication mechanism between all public and private food safety stakeholders.

## Indicators and scores

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

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

- At the time of the evaluation, a new Food Safety Law is under development.
- Response to several serious outbreaks of food borne disease events have been successful so far.
- Myanmar has organized RRTs that operate on an ad hoc basis in case of a suspected food safety related disease outbreak.

#### ***Areas which need strengthening/challenges***

- Establish a multi-sectoral strategy for a national food safety management and surveillance system from farm to fork.
- Implement food safety control management systems based on multi-sectoral involvement in risk profiling of food safety problems.
- Activate a transparent communication mechanism between all public and private food safety stakeholders.
- There are no legally binding food standards or SOPs for food borne disease outbreak investigations.
- There is no food safety control management system or communication mechanism between food safety stakeholders.
- There are limitations of human resources and financial support.

# Biosafety and biosecurity

## Introduction

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

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

### Target

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

## Myanmar level of capabilities

Myanmar has no national biosecurity and biosafety legislation, regulations, or frameworks at the time of the evaluation mission. The Department of Medical Research (DMR) has its own biosafety guideline and the NHL has developed a Biosafety manual, following the WHO biosafety guideline used by laboratories within the country. The development of the National Biosafety guideline by NHL is in process.

Biosafety and biosecurity is included with detailed implementation are described in the Myanmar National Policy on Health Laboratories, Dec 2016 and the draft Myanmar National Health Plan (2017-2022).

Private laboratories require licenses in the country. These contain common licence conditions/safety and security requirements for all licensed laboratories including laboratory structure, SOPs, waste management, Personal Protective Equipment availability, and trained laboratory staff. Ministerial structure of private hospital accreditation committee for laboratory licensing is organized to monitor laboratories within the country.

The NHL is WHO accredited for Polio, Measles, rubella, Japanese Encephalitis, and WHO assesses the laboratory annually for biosecurity and biosafety. The NHL has biosafety officers who monitor biosafety and biosecurity activities.

The LBVD laboratory is monitored and annually assessed by the Food and Agriculture Organization (FAO). The recommendations from that biosecurity and biosafety assessment have been put in place.

The NHL and the DMR have some level of control of access such as a pathogen storage room, lock and key, code system and CCTV monitoring for dangerous pathogens. Procedures for transportation security are established and followed. Biosafety and biosecurity risk assessment is in the formulation process.

There is no inventory of dangerous pathogens in Myanmar.

In terms of human resource there are biosafety officers at NHL and DMR but no training for specific personnel. There is an externally provided train-the-trainer programme for biosafety and biosecurity. Assessments of pre - and post training courses are conducted regularly. Services for laboratory personnel are limited. There have been biosafety exercises such as doffing and donning of personal protective equipment conducted.

Critical laboratory equipment such as safety cabinets are not routinely serviced and maintained except through expensive international companies. The highest BSL category is 2+. Suspect dangerous pathogens are sent via WHO to be tested overseas.

Limited information was available on animal, agriculture and Ministry of Defence biosecurity and biosafety systems, training, and practices.

## Recommendations for priority actions

- Develop national biosecurity and biosafety legislation, regulations, or frameworks.
- Undertake a comprehensive training needs assessment across human, animal, and agricultural sectors.
- Establish funding and ensure sustainability for supporting comprehensive national biosafety and biosecurity system.

## Indicators and scores

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

#### *Strengths/best practices*

- Deputy Director General of NHL is a member of "EU CBRN Project."
- NHL Biosafety manual and DMR biosafety guideline.
- NHL is a WHO accredited laboratory.
- FAO annual assessment of LVBD laboratory and recommendations actioned.
- Laboratory licensing and pathogen control measures are implemented to some extent and are included in 2017-2022 NSPHL.
- Biosafety manual developed for cross border biosafety with the Thailand and Chinese borders, largely driven by the risks from live bird markets.

#### *Areas which need strengthening/challenges*

- National biosecurity and biosafety legislation, regulations or frameworks are required.
- Development of the infrastructure of laboratories for biosafety and biosecurity.
- Establishment of a comprehensive national inventory of pathogens.
- Require a contract system, or in country expertise, for regular maintenance, certification, and calibration of equipment. For example, Biosafety cabinet accreditation funded by US Centre for Disease Control (CDC) (Thailand office), but only for NHL.
- Funding for biosafety and biosecurity is limited and sustainability of funding is required.
- Some laboratory workers are vaccinated based on exposure risk, but there is no occupational health monitoring programme.

- Spills must be reported, but there is no shower, eyewash, or post-exposure prophylaxis available for workers.
- Releases of pathogens are reported (at least from NHL) to the MoHS, but it is not clear what gets done with that information (i.e., if it triggers any kind of response).

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

### *Strengths/best practices*

- NHL provides biosafety and biosecurity training to some facilities and DMR and LBVD have regular training programmes.
- There is an assessment process for pre-and post -training courses.
- NHL has developed and disseminated a waste management manual.
- Vaccinations of laboratory personnel are provided depending on project risk.
- NHL developed the Biosafety manual, following the WHO biosafety guideline. DMR has its own biosafety guideline.
- MOHS and DMR have ethics review committee including biosafety and biosecurity components assessment.

### *Areas which need strengthening/challenges*

- Standards across all sectors (Human and animal health, defence, etc.).
- Development of a common curriculum for biosafety/biosecurity training.
- A training needs assessment is needed for human, animal, and agricultural sectors.
- A Non- Government Organization provides short term unsustainable training
- Routine equipment maintenance and calibration contract system with long-term commitment of resources should be implemented.
- Vaccination policy for laboratory staff.
- Sustained academic training in institutions that train those who maintain or work with dangerous pathogens and toxins.

# Immunization

## Introduction

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

### Target

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

### Myanmar level of capabilities

The Expanded Programme on Immunization (EPI) in Myanmar is a national-level immunization programme that covers 10 vaccine preventable diseases, (Diphtheria, Whooping cough, Tetanus, Haemophilus influenza, Hepatitis B, TB, Measles, Rubella, Pneumococcal pneumonia, Polio).

Pneumococcal Conjugate Vaccine was first introduced into routine immunization nationally in July 2016 and there is a plan to introduce routine Japanese Encephalitis vaccine in January, 2018 after conducting a nationwide Japanese Encephalitis campaign in November and December 2017.

The country's National Vaccine Action Plan is aligned with the WHO Global Vaccine Action Plan and immunization is voluntary. The plan also considers zoonoses of national concern. UNICEF and WHO are involved in monitoring vaccine coverage for the country which is measured monthly. The most recent campaigns were a measles/rubella campaign which was conducted in 2015 and National Immunization Days conducted in 2016. However, certain areas that are in conflict, hard to reach and illegal migrants cause difficulty for routine immunization. A Communication plan was developed and implemented before and during nationwide Measles- Rubella Campaign of 2015. Currently, more than 90% of cold chain capacity exists in the country. Monetary incentives are not provided for routine immunization.

Although supervision, monitoring, and report reviews are done to monitor the quality of coverage data, no specific funding or support is given for data gathering, reporting and immunization delivery. A network of WHO supported surveillance medical officers conducted case-based surveillance for vaccine preventable diseases (VPDs). Based on the Gavi (Global Immunization and Vaccine Alliance) appraisal, maintenance and strengthening of surveillance for VPDs that are prone to outbreaks, especially for polio, measles/rubella and Japanese Encephalitis, are in urgent need.

Vaccines in Myanmar are delivered through four different approaches: fixed, outreach, mobile and 'crash'. Immunization services are provided in Maternal Child Health Centres, urban Health Centres, and township hospitals in urban settings, and in rural Health Centres and Sub-Centres in rural areas. Approximately 80% of immunization services are provided through outreach services.

Myanmar has just published a comprehensive multiyear plan for immunization (2017-2021). The plan highlights the strengthening of the immunization programme management, human resources, financing and service delivery to provide equitable service to all target populations; improving demand creation and ownership of immunization; strengthening immunization supply chain, vaccine management and building stronger cold chain systems at all levels; maintaining zero polio cases and vaccine derived poliovirus; maintaining Maternal and Neonatal Tetanus Elimination status; achieving elimination of measles and

control of rubella and congenital rubella syndrome by 2020 and strengthening and maintaining strong surveillance systems for adverse events following immunization and other priority VPDs.

Myanmar's target for measles vaccine is set for at least 95 % coverage nationally and sub-nationally while for all other vaccines it is set at 95 % coverage nationally and at least 80 % sub-nationally. The 2016 administrative report shows Myanmar at 88% coverage for BCG, 90% for Penta3, 91% for measles rubella 1 and 88% for measles 2 and tetanus toxin 2.

## Recommendations for priority actions

- Conduct an EPI coverage survey .
- Develop strategy/plan to cover the low coverage areas.
- Strengthen human resource capacity and plan for supply, operations, and mid-level management/ supervision.
- Develop a communication plan for demand generation.

## Indicators and scores

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

#### *Strengths/best practices*

- Increased government commitment and a high level of engagement from the international community.
- The programme has successfully introduced a number of new and underutilized vaccines.
- A high-level advocacy meeting with state/region government and parliamentary representatives during 2016.

#### *Areas which need strengthening/challenges*

- Increase urban immunization and immunization in hard to reach and conflict areas.
- Promote demand generation.
- To allow effective utilization of available resources, including greater flexibility in funding allocation at peripheral levels and more rapid transfer of funds from central to peripheral level.
- To conduct the Crash programme in hard-to reach areas regularly.
- Coverage is not uniform across the country and there are pockets of areas with unimmunized children.
- Conduct EPI survey and Data Quality Audit.
- Armed and social conflicts present challenges.
- Reaching migrant population, peri-urban slums in major cities and geographically hard to reach areas needs to be improved.
- Inadequate operational support for routine immunization and outreach services.
- Inaccurate denominator for Hard to reach areas, areas with migrant populations and slum populations.

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

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

- An increasing health budget and commitment to fund traditional vaccines and co-finance Gavi-supported vaccines.
- An Effective Vaccine Management review in 2015 and a developed plan, in the process of implementation.
- There was no stock-out of vaccines at central level, State, Region level or township level during 2016 except Inactivated Poliovirus Vaccine (IPV) due to global shortage of IPV vaccine.
- Can successfully procure, store, and distribute the measles/rubella vaccines (over 14 million doses) during the Nationwide measles rubella campaign (2015) and polio vaccines (4.6 million doses) during national immunization days (2016).

### ***Areas which need strengthening/challenges***

- An increasing health budget and commitment to fund traditional vaccines and co-finance Gavi-supported vaccines.
- An Effective Vaccine Management review in 2015 and a developed plan, in the process of implementation.
- There is no stock-out of vaccines in central level, State, Region level or township level during 2016 except IPV due to global shortage of IPV vaccine.
- Can successfully procure, store, and distribute the measles rubella vaccines (over 14 million dose) during the Nationwide measles rubella campaign (2015) and polio vaccines (4.6 million doses) during national Immunization days (2016).

# DETECT

## National laboratory system

### Introduction

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

### Target

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

### Myanmar level of capabilities

Myanmar National Policy on Health Laboratories was developed in 2016 and a comprehensive National Strategic Plan for health laboratories was drafted. The NHL and PHL (Sub-national Measles, Rubella, and Japanese Encephalitis laboratory) are reference laboratories for human sector. They can detect 10 core tests (Influenza, TB, HIV, Malaria, Typhoid, Dengue, Measles, Rubella, Polio and Japanese Encephalitis). The NHL is accredited for disease-specific testing by WHO for Polio, Measles, Rubella, Japanese Encephalitis. The Food & Drug Administration (FDA) is accredited for ISO/IEC 17025- the general requirements for the competence of testing and calibration laboratories.

The NHL is the main reference laboratory and specimens from intermediate/district levels are sent to NHL directly. There are standardized SOPs in place for specimen collection, packaging, and transport. The NHL participates in several international laboratory networks. Specific point of care diagnostics testing strategy and algorithms are being used for some priority diseases like HIV and there is a plan to improve and expand the repertoire of rapid tests for dengue; however, the presence of many flaviviral diseases needs to precede this with prior evaluation. The NHL has National External Quality Assessments (EQAs) programme in Bacteriology, Virology, Serology, Parasitology, Immunology, Biochemistry, and Haematology.

Data on the animal laboratory capacities could not be properly assessed but full collaboration between the entities of NHL/LVBD is not in place and ad hoc driven as of today.

## Recommendations for priority actions

- Establish and maintain systematic collaboration between human and animal health laboratories, the national laboratory system should be considered one entity.
- Endorse and implement the National Strategic Plan for Health laboratories (currently drafted).
- Developing national testing guidelines for clinicians and veterinarians based on financial and practical factual constraints to maximize the capacity for case diagnosis, indicative surveillance, and outbreak contexts.
- Improve simple testing capability in remote areas, including point of care diagnostics and harvesting the flora of new combined lateral flow tests on the market, but under tight quality control by the central laboratory.

## Indicators and scores

### D.1.1 Laboratory testing for detection of priority diseases – Score 3

#### *Strengths/best practices*

- The NHL is a reference laboratory for human sector and can detect 10 core tests (Influenza, TB, HIV, Malaria, Typhoid, Dengue, Measles, Rubella, Polio and Japanese Encephalitis). Zika can be tested if neutralizing antibody-testing can be done by the Plaque Reduction Neutralization Test.
- The capacity of diagnosing pathogens at the central laboratory goes beyond the score 3 as the core test in the livestock sector could not be determined. Connections overseas are in place as demonstrated in a suspected Ebola case.

#### *Areas which need strengthening/challenges*

- The ten core tests are not available for the whole population.
- Regular maintenance and calibration contract system for key equipment is not in place yet which could jeopardize reliability.
- The introduction of Point of Care (POC)-tests for flaviviral disease require a new laboratory case definition instituted for dengue.

### D.1.2 Specimen referral and transport system – Score 3

#### *Strengths/best practices*

- A system is in place to transport specimens to the NHL from at least 80% of intermediate level facilities within a day, for advanced diagnosis during case-centred diagnostics in normal situations. This figure may be higher during outbreaks as extra resources are allocated.
- Specimen transportation and packaging specification is conducted in compliance with UN standard (i.e. BSL4 pathogens cannot use domestic flight transport). The NHL participates in international laboratory networks such as ASEAN, WHO for Influenza, Polio, Measles, and Rubella, Japanese Encephalitis, Dengue.
- There are SOPs in place for specimen collection, packaging, and transport for category B-pathogens.

#### *Areas which need strengthening/challenges*

- The livestock part of the national laboratory system could not be assessed.
- Need to establish a dedicated national and international courier contract system with security adviser as per regulations and include UN2819 cat A samples in the SOPs.
- Self-assess transport capabilities and performance during different scenarios in remote locations.

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

#### *Strengths/best practices*

- Specific POC diagnostics testing strategy and algorithms are being used for some priority diseases like HIV and there are plans to expand this with defined algorithms for usage.

#### *Areas which need strengthening/challenges*

- No information on corresponding plans or situation in livestock or wildlife POC tests.
- Careful in-house testing against WHO certified techniques needs to be done before launching POC tests that often are operated by non-laboratory trained personnel.

### D.1.4 Laboratory quality system – Score 3

#### *Strengths/best practices*

- There is specific national document which describes the registration procedure for diagnostic medical devices (In Vitro Diagnostics, i.e. kits and reagents) done by FDA.
- The NHL is accredited for disease-specific testing by WHO for Polio, Measles, Rubella, Japanese Encephalitis. The National Influenza Centre at NHL is also a WHO recognized laboratory.
- The NHL has National EQA programme and if the reported results are inaccurate, NHL team do the on-site assessment and training.

#### *Areas which need strengthening/challenges*

- A national objective body should oversee quality control and accreditation.
- The animal sector quality control and accreditation is not described.
- The private sector is not required to participate in EQAs.

# 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 bio-surveillance effort that facilitates early warning and situational awareness of biological events.

### Target

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

## Myanmar level of capabilities

Myanmar has a Communicable Diseases Law 1995 which was revised in 2011. The revision of the Communicable Diseases Law is in process (at the time of the mission), and includes IHR but is not yet in place. Human health and animal health sectors have lists of notifiable diseases, and the list is to be updated shortly.

The list of notifiable diseases under national surveillance in the Communicable Diseases law, includes Cholera, Plague, SARS and another 17 diseases, is currently being reviewed.

Myanmar has multiple capacities when it comes to event based surveillance and has demonstrated transition into outbreak management. In this context, electronic communication methods and use of public media has been utilized.

The Indicator-based surveillance system includes Acute Flaccid Paralysis (AFP) surveillance and VPD surveillance, and a Health Management Information System for communicable diseases with reporting units down to grass roots level. However, it was reported that first responders may not be aware of which diseases or events are notifiable and may lack instruction for prompt indicator-based surveillance, which could lead to a biased data outcome. Furthermore, a one-health approach between human, animal and wildlife stakeholders is ad hoc and could be improved to function as one integrated entity.

Training is conducted for public health staff, however proper training for clinical staff is not yet available and physicians and veterinarians are first responders in all health-related surveillance.

Public health staff at regional and/or national level have the skills to analyse surveillance data, however it needs strengthening through capacity building for proper data management and storage, including advance data analysis and Global Information System application. There is a weekly multi-sector meeting at the Township General Administration Department and surveillance information sharing between sectors is done at the meeting relating to unusual events (event triggering). Reporting systems need strengthening. Data pertaining to outbreaks is handled efficiently and integrated at the PHL for human diseases.

Syndromic surveillance systems exist for Acute Flaccid Paralysis, Fever with Rash, and Influenza like Illness (ILI) and monthly data validation is done and reported through the Central Epidemiology Unit (CEU), NHL, and if needed to WHO. A weekly epidemiology bulletin is produced by CEU to share surveillance information with the MoHS, State and Regional Public Health Department and stakeholders. There is a plan to strengthen communication channels to the public and a plan together with China to develop a Myanmar Centre for Disease Control (CDC). However, it is unclear what such a facility would encompass of the existing functions at the different stakeholders.

## Recommendations for priority actions

- Indicator-based surveillance needs to include capacity building among primary responders and provide education and follow-up of adherence.
- A one-health approach encompassing human, animal and wildlife surveillance should be considered.
- Review Communicable Diseases laws for IHR, review surveillance systems (indicative and event triggered), including list of notifiable diseases and syndromes.
- Look for possible bias in systematic data collection caused by geographical factors, capacity limits and knowledge among stakeholders.

## Indicators and scores

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

#### *Strengths/best practices*

- A list of notifiable diseases exists.
- Daily phone call with State and Region public health departments, who in turn have daily phone calls with townships for unusual events.
- Weekly bulletin of collated data.

#### *Areas which need strengthening/challenges*

- Human - Animal information sharing ad hoc.
- No mandatory or regular reporting from private hospitals - this is a known challenge.
- Indicator surveillance needs strengthening, including awareness of all clinicians and veterinarians (including private) for reporting cases.

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

#### *Strengths/best practices*

- More than 600 health staff trained on short course Field Epidemiology Training Programme (FETP).

#### *Areas which need strengthening/challenges*

- No proper surveillance training for clinical staff.
- Electronic system at initial stage. For now, apps (e.g. viber) are in use for rapid information sharing and response used on an ad hoc basis.
- Some regular multi sector meetings and information sharing occur, but not systematic or facilitated by electronically overarching systems.

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

#### *Strengths/best practices*

- Some laboratory results and outbreak data shared, but no apparent routine/daily information link between laboratories and public health surveillance.
- Veterinary diagnostic laboratories send monthly report to epidemiology unit, for real-time surveillance; it could be more often and bilateral.

#### *Areas which need strengthening/challenges*

- Collaboration between human, animal, and wildlife stakeholders.
- Analysis, reporting, dissemination.
- Distinction between indicator and event triggered surveillance.

### D.2.4 Syndromic surveillance system – Score 3

#### *Strengths/best practices*

- AFP, ILI, SARI, fever with rash at “sentinel sites”.
- Case definitions are in place.

#### *Areas which need strengthening/challenges*

- Syndromic surveillance should be possible at all healthcare and veterinary facilities.

# Reporting

## Introduction

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

### Target

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

## Myanmar level of capabilities

The IHR NFP resides within the International Health Division and CEU, Department of Public Health. It appears to be functioning in accordance with IHR requirements, and has operational links with other sectors and focal points, including the World Organisation for Animal Health (OIE) focal point Livestock Breeding & Veterinary Department (LBVD) and the International Food Safety Authorities Network (INFOSAN) focal point, Food & Drug Administration (FDA). Real incidents have been assessed and reported to international agencies through the focal point systems, including cases of Zika virus disease, circulating Vaccine Derived Poliovirus (cVDPV), suspected Ebola, and High Pathogenic Avian Influenza (HPAI) in poultry. Timeliness of reporting for the health sector is potentially affected by the need for final Ministerial approval.

With regards to reporting within country, activities have taken place to raise awareness of the IHR and the NFP responsibilities, and reporting of a potential PHEIC. Communicable Disease legislation has been updated to include IHR and reporting and management of PHEIC. However, awareness among clinicians in the health sector, especially the private health sector, needs to be further increased, and formal processes and protocols for the health sector reporting up to the NFP are yet to be established e.g. for identifying and assessing a potential PHEIC. Regular information sharing with partners and cross border capacity building needs strengthening. Improving Information Communications Technology (ICT) facilities could assist with reporting and information sharing with WHO and partners.

## Recommendations for priority actions

- Establish written processes and protocols for identifying and reporting potential PHEICs up to central level MoHS /NFP.
- Improve workforce capability and awareness, including IHR responsibilities, risk assessment and reporting of a potential PHEIC, for human and animal health sectors (at national and subnational levels).
- Ensure regular, systematic information sharing between human and animal health sectors.
- Improve ICT for reporting and information sharing.

## Indicators and scores

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

#### *Strengths/best practices*

- For human health issues, the PHEIC committee and Union Minister of Health and Sport approves reporting to WHO, so timeliness of 24 -hour reporting can be an issue.
- For animal health it is the Director General, LBVD.
- Risk assessment capability needs further strengthening.
- Improving ICT facilities, video conferencing facility, could assist with reporting and information sharing with WHO and partners.

#### *Areas which need strengthening/challenges*

- The IHR NFP is operational. Three contact people are available and are located within the International Health Division and CEU, Department of Public Health.
- NFP has regular communication with WHO, other NFPs, and with other sectors and focal points, including the OIE focal point (LBVD) and INFOSAN focal point (FDA).
- There are examples of risk assessments and reporting to WHO, including cases of Zika virus disease (2016), cVDPV (2015), and suspected Ebola (2015).
- Animal health incidents (e.g. HPAI in poultry) have been reported to OIE in addition to regular OIE reporting.
- MOUs with MBDS and Thailand for regional or bilateral country reporting are available.

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

#### *Strengths/best practices*

- Activities have taken place to raise awareness of IHR and NFP responsibilities, including working across sectors at the central level.
- In 2016, the MoHS, MoALI, Ministry of Foreign Affairs, Ministry of Defence, Ministry of Transport and Communications and other stakeholders were engaged in response to a Zika case, including risk assessment.
- Communicable Disease legislation has been updated to include IHR and reporting and management of PHEICs.
- There is a plan for a Polio outbreak simulation exercise to be conducted in 2017.

#### *Areas which need strengthening/challenges*

- Information sharing between animal health and human health occurs during events but needs to be regular.
- Further awareness raising among sectors of IHR role needed.
- Not all clinicians aware of reporting responsibilities and processes.
- Written processes and protocols for identifying and reporting potential PHEICs up to central level MOHS/NFP are needed.

# Workforce development

## Introduction

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

### Target

*States Parties with skilled and competent health personnel for sustainable and functional public health surveillance and response at all levels of the health system and the effective implementation of the IHR (2005).*

## Myanmar level of capabilities

In Myanmar, the health workforce is produced from 6 Medical universities, 1 University of Public Health, 2 Universities of Dental Medicine, 2 Universities of Paramedical Science, 2 Universities of Pharmacy, 2 Universities of Nursing, 1 University of Community Health, and 50 Nursing and Midwifery schools under the MOHS.

Graduates from these universities and training schools are deployed at Central, States/Regions, Districts, Townships, and up to grass root level for providing health care services to the community. Current health personnel stock level is 1.49 health workers per 1,000 people (Myanmar Ministry of Health, 2012), and it is well below the WHO Millennium Development Goals composite threshold of 2.5 health workers per 1,000 people (WHO, 2016) and sustainable Development Goal threshold of 3.8 health workers per 1,000 people.

In relation to IHR workforce core capacity, about 150 RRTs exist across the country including epidemiologists, microbiologists, clinicians, paediatricians and laboratory technicians and Health Assistant. Workforce such as epidemiologists, biostatisticians, social scientists, and information system specialists are very limited at all levels of the health system (Local, intermediate, and national).

Universities of Medicine (1, 2, Mandalay) used to offer MSc (Public Health) from 1990 to 2007 and PhD (Public Health) from 2002. These postgraduate degree holders have been working as key stakeholders or public health leaders in the variety of Public Health sectors under MOHS. These universities have also been re-offering Master of Preventive and Tropical Medicine and PhD programmes since 2015 in order to improve the qualified and adequate human resources for health. The University of Public Health (Yangon) has been offering post graduate courses for public health professionals since 2008. The University of Community Health (UCH) Magway has been training the backbone of the Public Health Workforce i.e. Health assistants, Public Health Supervisor Grade 1, and Grade 2 since 1951 at its school level and 1995 at university level. In addition, UCH also trains House Officers and midwives for community medicine field practices. Currently, The University of Public Health is offering Ph.D. (Public Health), Master of Public Health (MPH), Master of Hospital Administration and Health Management and Diploma in Hospital Administration. However, it does not have the capacity for training specialties like epidemiologists, biostatisticians, and social scientists and must rely on the capacity of very few foreign-trained health personnel in these areas. The Human Resource (HR) strategic plan for 2012 to 2017 is available and there are plans to review and update it this year as there are HR inequalities between regions.

## Recommendations for priority actions

- Develop a HR strategic plan for the next 5 years after evaluating existing HR strategic plan. This includes development of HR data base with tracking facilities.
- Increase health personnel stock level in line with Sustainable Development Goal targets.
- Train more epidemiologists, biostatisticians, and social scientists abroad or set up in-country training for those specialities which facilitate further strengthening of IHR core capacities.

## Indicators and scores

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

#### *Strengths/best practices*

- Human resources for implementing IHR core capacities are available at all levels: national, provincial, district, township and rural health centres but need improvement in number and core competencies.
- Multi-disciplinary teams are formed under MOHS or Ministry of Social Welfare, Relief, and Resettlement for rapid and effective response in emergency conditions so that multi-sectoral, national coordination and communication capacity could be applied to conduct some of IHR core functions.

#### *Areas which need strengthening/challenges*

- The current health personnel levels need to be increased in specific public health fields and further equipped to implement IHR core competencies.
- Specialty training in specific areas: Epidemiologists, bio-statisticians, social scientists, and information specialists is required.

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

#### *Strengths/best practices*

- Myanmar regularly conducts basic training programmes: (1-3 month) short course for Field Epidemiology Training Programme (FETP) and will upgrade the FETP courses to the intermediate level (9-month courses).
- Almost all the States and Regions have Special Disease Control Unit team leaders and they are already trained through the FETP. The FETP Training Unit has trained nearly 700 health professionals including doctors, health assistants and veterinarians since 2008.
- University of Public Health provides general and applied epidemiology training through Ph. D (Public Health), MPH, Master of Hospital Administration and Health Management and Diploma in Hospital Administration courses. Universities of Medicine also provides general and applied epidemiology through Ph. D and master programmes in Preventive and Tropical Medicine courses to help expand the pipeline of qualified public health professionals.

#### *Areas which need strengthening/challenges*

- Currently, the Myanmar FETP programme is only a short course and needs to be upgraded to the intermediate level.
- The FETP training programme should include all diverse professions engaged in conducting IHR core functions
- Cross training between animal and human health should be enhanced.

- Evaluation of FETP training should be made as there is no definite tracking system for field epidemiology capacity, reviewing/revising FETP curriculum and consider including mentorship programme in FETP training.
- Review and revise the current Field Epidemiology Training Curriculum and Program such as inclusiveness of participants and training period.

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

##### *Strengths/best practices*

- A Health workforce strategic plan exists but is not regularly reviewed, updated, or implemented consistently.
- Then Health workforce strategic plan (2012-2017) exists and aims to compile information concerning HR supply, demands and critical gaps in both public and private sectors.
- Strengthening management of Human Resources for Health Project, (2017) has been launched to conduct HR database system strengthening and reviewing current HR policies and deployment plans.

##### *Areas which need strengthening/challenges*

- Implementation of Health workforce strategic plan (2012-2017), as there was no specific implementation plan included for each career track and no tracking system for strategic plan implementation.
- HRH management is calling for a system that allows synchronization between production and deployment of health workers. HR information system must be strengthened as there is a critical challenge in anticipating workforce needs, demands and supplies, attritions, trends, and future scenarios.

# RESPOND

## Preparedness

### Introduction

Preparedness includes the development and maintenance of national, intermediate and community/primary response level public health emergency response plans for relevant biological, chemical, radiological and nuclear hazards. Other components of preparedness include mapping of potential hazards, the identification and maintenances of available resources, including national stockpiles and the capacity to support operations at the intermediate and community/primary response levels during a public health emergency.

#### **Target**

*Development and maintenance of national, intermediate (district) and local/primary level public health emergency response plans for relevant biological, chemical, radiological and nuclear hazards. This covers mapping of potential hazards, identification and maintenance of available resources, including national stockpiles and the capacity to support operations at the intermediate and local/primary levels during a public health emergency.*

### Myanmar level of capabilities

Myanmar has some emergency plans and policies, including the Standing Order on National Disaster Management, the Myanmar Action Plan on Disaster Risk Reduction, and response plans for some high risk communicable diseases. However, there is no national overarching health emergency preparedness and response plan that covers all IHR-related hazards and points of entry. Work is underway to develop such a plan.

A national public health risk assessment has not yet been undertaken. Some hazard and resource mapping has been conducted, but is only in its initial stages. This requires some further work, including creating an accurate inventory of emergency resources, details on health personnel and the capacities and capabilities of health facilities, and a process for funding and maintaining emergency resources.

### Recommendations for priority actions

- Develop a national multi-hazard public health emergency preparedness and response plan, which should include processes for funding, managing, and mobilizing emergency resources.
- Undertake a National Risk Assessment and Resource Mapping, and update as needed.

## Indicators and scores

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

#### *Strengths/best practices*

- Some specific plans and policies exist, including:
  - Standing Order on National Disaster Management (2009). This largely focuses on natural disasters, rather than other public health emergencies (e.g. infectious disease threats)
  - Myanmar Action Plan on Disaster Risk Reduction - from Ministry of Social Welfare, Relief, and Resettlement (MSWRR). This also mainly focuses on natural disasters.
  - Mass Causality Management Plan at central level and State/ Regional level tertiary hospitals.
  - Other hazard specific plans (e.g. avian influenza, Ebola, Zika)

#### *Areas which need strengthening/challenges*

- There is no national overarching health emergency preparedness and response plan that covers all IHR-related hazards and points of entry.
- The Disaster and Public Health Emergency Response Unit is currently planning to develop a multi-hazard national public health emergency preparedness and response plan.
- A process has also begun to update the National Standing Order and the Myanmar Action Plan on Disaster Risk Reduction.

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

#### *Strengths/best practices*

- There is hazard mapping for some natural disasters (by the Myanmar Information Management Unit), and some communicable diseases including vaccine preventable diseases.
- There is some resource mapping for health sector resources, such as location and general capability of hospitals.
- Surge capacity is available for responding to public health emergencies, determined by the emergency coordination meeting between central level senior health officials and the State/ Regional level public health directors.
- There appears to be workable procedures for resource mobilization to support response at the local level.

#### *Areas which need strengthening/challenges*

- A national public health risk assessment to identify and prioritize public health threats has not yet been undertaken.
- Resource management traditionally done without resource mapping.
- The process of resource mapping is only in its initial stages, and requires some further work, including creating an accurate inventory of emergency resources (e.g. stockpiles), and details on health personnel and the specific capacities and capabilities of health facilities.
- Emergency resources need to cover all relevant hazards and match the risks identified in the national risk assessment.
- There is currently no dedicated funding for risk and resource mapping, or for funding and maintaining emergency resources.

# Emergency response operations

## Introduction

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

### Target

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

### Myanmar level of capabilities

The Public Health Emergency Operation Centre (PHEOC) performs a key role for public health response and outbreak control at the Ministry of Health. In addition, there is a national Emergency Operation Centre (EOC) at the Relief and Resettlement Department mainly for natural disaster management.

An operational EOC has been established, but a comprehensive manual with SOPs that detail measures such as delegation of authority, activation level criteria, generic organizational structure, roles, and responsibilities of participating personnel.

The PHEOC currently functions without permanent staff and there is an absence of clearly defined requirements for training of personnel who may be called upon to participate in an emergency response. Currently, officers and staff from International Relations Division are managing the PHEOC functions. Teleconferencing and videoconferencing can be done in the PHEOC, but those are not software-based. There is a backup power source for EOC. A land line telephone, internet and email are also in place.

Working committees for public health/animal health are formed with multi-sectorial people. Committees can be formed and emergency meetings are held to manage emergency response. This procedure is also the same at the township level. The activation of the EOC can be done at National and States/ Regional levels, International Relations Division officers and staff perform EOC functions.

Favourable factors are that working committee members are given training including public communication as a part. State/ Regional Levels health staff appointed at the points of entry (airport, seaport, and ground crossing) have received the training for case management of IHR related emergencies.

## Recommendations for priority actions

- Identify and assign permanent staff for the PHEOC within an IMS structure, along with job descriptions and appropriate training.
- Develop a PHEOC plan/handbook with associated SOPS.
- Initiate an exercise and continuous improvement programme for emergency preparedness and response by conducting at least one table-top and one functional exercise per year to reinforce IMS personnel training, skills and EOC operations.
- Develop SOPs for response operations, daily functions, and managing cases of infectious patients, including at the points of entry.

## Indicators and scores

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

#### *Strengths/best practices*

- Ministry of Social Welfare, Relief, and Resettlement (MSWRR) has national EOC that is used mainly for natural disaster management.
- MoHS has a PHEOC for infectious disease outbreaks with teleconferencing and videoconferencing capacity.
- Activation for emergency operations can be done at State/Regional level or national level.
- Once there is PHEOC activation, officers, and staff from International Relation Division and other necessary additional staff manage the PHEOC functions. Activation is for 24/7 during emergencies. MoHS EOC procedures for activation are used, and have been used for past events, but these need to be documented.

#### *Areas which need strengthening/challenges*

- Although MoHS staff provide services to the PHEOC upon activation and to support routine meetings held in the PHEOC, no dedicated staff exist to work in the PHEOC.
- There are no terms of reference with clear definition of roles and functions to support PHEOC functions.
- Training of EOC responsible persons and surge staff are also lacking.

### R.2.2 EOC operating procedures and plans – Score 1

#### *Strengths/best practices*

- The reports of the emergency meetings are delivered to higher/upper levels and disseminated to other related departments or organizations only if needed.
- The Plan is to be published on MoHS Website

#### *Areas which need strengthening/challenges*

- There is no documented PHEOC Operations Procedures and Plan and no records of maintenance and updates.
- The reports are delivered to higher/upper levels and disseminated to other related departments or organizations only if needed. Some are published on MoHS Website.
- Evidence illustrating the use of an IMS is not available (e.g. IMS organizational charts for past public health emergencies are not documented)

### R.2.3 Emergency operations programme – Score 2

#### *Strengths/best practices*

- An after-action review and situation report for Cyclone Roanu was developed.

#### *Areas which need strengthening/challenges*

- No functional exercise for a public health emergency completed in the last year. Performing and documenting for those exercises are recommendable.

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

#### *Strengths/best practices*

- Case Management Guidelines are available for priority diseases such as Acute Encephalitis Syndrome, Rabies, Cholera, Ebola, Zika, MERS interim guidelines, SARI, H1N1, Avian Influenza and some Vaccine Preventable Diseases such as Polio, Measles, and Diphtheria.
- At the airports in three major cities, health staff equipment, and ambulances are ready for management and transport of potentially infectious patients at the points of entry. Those staff have received the training for case management of IHR related emergencies

#### *Areas which need strengthening/challenges*

- No written documents/ SOPs for the management and transport of potentially infectious patients in the local level and points of entry. Only workable procedures exist at the airports.
- Case management guidelines printing and distribution to all levels often depends on partners.
- Case management guidelines are not available for chemical and radiological hazards.
- Case management guidelines should take an all-hazards approach to respond to unknown pathogens and case management should be integrated into the incident management system.

# Linking public health and security authorities

## Introduction

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

### **Target**

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

## Myanmar level of capabilities

Myanmar currently relies upon its Standing Order on Natural Disaster Management for coordinating activities between government agencies (through the appropriate subcommittees such as for health care and for information management). The authorities found in this document, however, extend only to natural disaster responses, and do not address information sharing related to events caused by a potential deliberate release of a biological agent. No procedures for such sharing of relevant information exist, and such information sharing is not exercised.

## Recommendations for priority actions

- Develop a Memorandum of Understanding (MOU) or other agreement between public health and security organizations, which defines the criteria that trigger immediate sharing of information.
- Develop SOPs for joint public health and security risk assessment of potential deliberate biological incidents that have both public health and security ramifications, as well as for implementing the information sharing MOU.
- Develop a joint exercise programme between public health and security authorities that tests and improves plans and procedures.

## Indicators and scores

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

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

- A national disaster management committee (NDMC) has been formed to coordinate emergency management activities for various responses.
- Several subcommittees such as a healthcare subcommittee also exist to support the NDMC in addressing specific health issues. These committees are charged with coordinating and sharing information between government units, but only with respect to natural disasters.

#### ***Areas which need strengthening/challenges***

- There is currently no formal MoU or other documentation of commitments to information sharing, or the triggers for such immediate information sharing.
- Information that may be relevant to law enforcement or security investigations is currently only shared during routine Natural Disaster Management meetings or when ordered by senior public health leaders to be released to other government agencies.
- There are also no SOPs that define how joint risk assessment and information sharing between public health and security authorities is to be conducted when facing potential deliberate biological events. A review of supplemental documentation provided during the JEE did not reveal any agreements or mechanisms for such activities beyond sharing of information related to natural disasters.

# Medical countermeasures and personnel deployment

## Introduction

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

### Target

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

## Myanmar level of capabilities

Myanmar has no plan in place that identifies procedures and decision making related to sending and receiving medical countermeasures during a public health emergency. There is a functional process to send and receive medical countermeasures. No specific exercise had been conducted in the last year.

Myanmar has some capacity for production of some antibiotics, drugs, and vaccines, but the production capacity is limited for response to public health emergencies of national and international concern. There is also no dedicated staffing identified for coordination related to delivery and receipt of countermeasures, although a working mechanism exists.

No plan, procedure or legal provision is in place for procuring animal countermeasures.

There is also no national plan for receiving and sending health personnel during a public health emergency but there are functional procedures carried out by assigned sectors for local and international processes. The decision to send or receive personnel during an emergency is taken by members of the relevant sectors at the Committee Meetings.

## Recommendations for priority actions

- Develop procedures and decision-making criteria for requesting and sending medical countermeasures and health personnel during public health emergencies
- Improving access to in-place stockpiles of countermeasures matching the foreseen risks.

## Indicators and scores

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

#### *Strengths/best practices*

- There is a functional process in place. Some documentation exists.
- There is a sub-committee or working committee for logistic management functions for security concerns of medical countermeasures during a shortage.
- During the flooding in 2015 access to international assistance was activated through the Non-Governmental Organization (NGO) system and direct requests to embassies.
- Myanmar has some capacity for production of some antibiotics, drugs, and vaccines.

#### *Areas which need strengthening/challenges*

- A definitive plan should be in place to describe procedures and decision-making processes.
- Identification of stockpiling needs i.e. antivirals for influenza to give an indication of requirements.

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

#### *Strengths/best practices*

- There is a functional process carried out by assigned sectors for local and international processes.
- The National Disaster Management Committee has a sub-committee for international relationships which meets on an ad hoc basis.
- Myanmar has experience of fulfilling a request from Thailand to receive or send personnel managed through the Ministry of Foreign Affairs and the military in a very short timeframe; 10 doctors were sent to Tacloban in the Philippines as a relief during cyclone Haiyan.
- The Ministry of Foreign Affairs is the lead Ministry for international relationships, including the coordination of international travel into and out of Myanmar and has well established processes for this.

#### *Areas which need strengthening/challenges*

- There is no written specific plan to describe the procedures and decision-making process.
- This plan should include training criteria and standards for health personnel that are being sent or received.
- Training procedures and materials are needed to orient arriving personnel into the organization.

# Risk communication

## Introduction

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

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

### Target

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

### Myanmar level of capabilities

In Myanmar, risk communication at the national level is jointly led by three government departments – the MoHS, the Ministry of Information (MOI), and the Ministry of Social Welfare, Relief, and Resettlement (MSWRR). Coordination across these departments, and with other agencies, is guided by the National Disaster Standing order as part of the National Disaster Coordination Committee mechanism. This standing order currently serves as the national risk communications plan, but is limited in its scope and level of detail. Within the MoHS, activities are coordinated across three units, with the CEU usually leading communications for public health emergencies. However, the CEU or MoHS does not have any dedicated or specialized risk communications staff.

Public messaging takes place during emergencies across various media platforms - including TV, Radio, and social media - and in a range of languages. Some proactive messaging outside emergencies also takes place, for example giving public advice regarding vector borne diseases, zoonoses (e.g. avian influenza, leptospirosis), and non-communicable diseases (e.g. heat stroke). Assessment of how effective and appropriate these messages are for their target audience is limited and not ongoing.

Levels of community engagement vary across the country. A local health workforce exists that can closely engage within towns and villages, for example community health workers and health volunteers. However, the mechanisms for engagement are only systematic in some towns (e.g. monthly meetings), whereas in other towns the process is likely to be more ad hoc, and in some towns/villages may not occur.

## Recommendations for priority actions

- Develop an all-hazards national risk communications plan.
- Establish suitable funding to implement national risk communications plan and functions.
- Conduct ongoing assessments of the effectiveness of public information messaging, including formalizing system for feedback and adjusting messaging as appropriate.
- Establish proactive and ongoing engagement with communities in areas where engagement is currently limited, to help inform messaging and risk assessment.

## Indicators and scores

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

#### *Strengths/best practices*

- National Disaster standing order (2009) is in place, endorsed by the National Disaster Management Committee, as in the process of being updated.
- The existing staff in MoHS, MOI & MSWRR share responsibility and take part in risk communication functions for emergencies, and coordinate with other government agencies / departments.
  - MoHS covers health care services and health education to the community. Three units are involved – CEU, the Disaster and Public Health Emergency Response Unit (DPHER), and the Health Literacy Promotion Unit (HLPU). CEU develops messages relating to public health emergencies, and HLPU assists with editing, design, and dissemination.
  - The MOI is responsible for disseminating information and news to the public.
  - The MSWRR helps mitigate impacts of emergencies
- MSWRR does have some permanent communications staff in their Emergency Operation Centre, and provides some access to other agencies for communications training

#### *Areas which need strengthening/challenges*

- There are no dedicated /specialized risk communication staff in MoHS.
- There is no specific budget line for risk communication.
- There is no risk communications training within MoHS.
- There are no established shared communication plans and/or SOPs between Government Ministries for emergencies.
- Communications roles and responsibilities, and clearance processes, need to be formally documented.

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

### *Strengths/best practices*

- Coordinated communication is in place under National Disaster Coordination Committee mechanism with MoHS, MoI and MSWRR, including coordinated communication among other Ministries and national stakeholders.
- There are also both formal and informal communication mechanisms to States/Regions during an emergency.
- Communication channels are in place to coordinate communication with the hospital and healthcare sector during emergency.

### *Areas which need strengthening/challenges*

- Developing communication response plans is only within governmental stakeholders, mostly for the occurrence of outbreaks/emergencies and is not regular.
- Animal health agencies could be more actively involved in helping to lead communications.
- There is only informal coordinated communication between civil society organizations and government ministries for affected communities during emergencies.
- Connection with the private sector during emergencies is also weak and needs to be improved.

## R.5.3 Public communication – Score 3

### *Strengths/best practices*

- Multiple platforms for disseminating information are available (TV spots, interview programmes, radio channels, social media, health education pamphlets, posters, and banners) and some ethnic languages are available for TV and radio channels.
- 11 different major ethnic languages are available for TV channels and 17 languages for radio channels.
- A mobile application - Disaster Alert Notification - was created in 2016 for bridging the information gap on disaster risk communication by MSWRR in coordination with Department of Meteorology and Hydrology.
- Director General, Permanent Secretary and Deputy Directors General are trained as public spokespersons for risk communication in three ministries.
- Some proactive messaging outside emergencies takes place, for example giving public advice regarding vector borne diseases, zoonoses (e.g. avian influenza, leptospirosis), and non-communicable diseases (e.g. heat stroke).

### *Areas which need strengthening/challenges*

- There is no communication strategy tailored to specific audiences, only messages to the general population.
- There is no evidence-based analysis of communication methods for behaviour change.

#### R.5.4 Communication engagement with affected communities – Score 2

##### *Strengths/best practices*

- Some engagement, but gaps exist
- Many towns have township health committees, with involvement of township health officers, health assistants and township health nurses. Some meet regularly (e.g. monthly), but not all.
- There are also HLPUs state and region health promotion officers, as well as Community health workers and volunteers in over 60,000 villages.
- There is a vertical reporting system from district level to central and then up to national level. In the last Zika virus incident, after press release of finding one Zika virus positive patient in the country, there was a response mechanism to public feedback and questions.

##### *Areas which need strengthening/challenges*

- Testing analysis with target audiences is required.
- Assessment of how effective and appropriate messages are for their target audience is limited and not ongoing.
- A formal mechanism for receiving feedback and adjusting messages is not in place (MOI has a general hotline and feedback loop, but not health specific).

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

##### *Strengths/best practices*

- Ad hoc methods for social media surveillance exists (including through healthcare workers).
- MOI does undertake some verification of any rumours and then clarifies via media statement.
- Local community rumour monitoring and clarification can be done by local community health staff and voluntary workers.
- Some dissemination of information from CEU and MOI via social media.

##### *Areas which need strengthening/challenges*

- Rumour and social media monitoring is not formal or systematic and not fully used to guide response.

# OTHER IHR-RELATED HAZARDS AND POINTS OF ENTRY

## Points of entry

### Introduction

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

### Target

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

### Myanmar level of capabilities

There are 8 designated points of entry (PoE), 3 international airports, 1 international port and 4 designated ground crossings – three with Thailand and one with China. Three passenger assessment facilities are available in airports and ports with basic investigation facilities including ECG, glucometer and thermometer, rapid test kit for influenza and diarrhoea. Training is given for basic life support for health staff but a medical emergency team needs to be established at PoEs and facilities are limited for prompt risk assessment.

Health staff from the local public health department are assigned for border cross point health activities. Cross border PoEs have no organizational set up for quarantine and no office space for PoE personnel.

A fully equipped ambulance is in place at the Yangon airport but without a designated driver at present. Myanmar needs a system in place for appointing a team of medics and driver for each ambulance deployed. MPH graduates are assigned for PoE inspection but no specific training for quarantine is provided for them.

The routine and public health emergency response capacities for PoEs is varied across international PoEs such as Yangon International Airport and cross border PoEs such as Kawthaung.

Public health emergency plans are in place for responding to specific diseases (Zika, Ebola, MERS) occurring at PoEs, however, Myanmar still needs to develop a formal national public emergency contingency plan for their designated points of entry. There is also no written SOPs or MOUs with other countries for cooperation on quarantine services at PoEs and there has been no formal evaluation for PoE response to PHEICs.

## Recommendations for priority actions

- Develop and implement an encompassing National Public Health Emergency Contingency Plan for the designated points of entry and link it with the national public health emergency plans.
- Human resource capacity building and plan to include the animal health staff and staff at the ground crossings.
- Conduct a formal evaluation of PoE core capacities for response to likely public health emergencies.
- Establish/improve measures for vector control, safe environment, and animal quarantine at the designated PoEs

## Indicators and scores

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

#### *Strengths/best practices*

- Medical staff (including MPH graduates) are serving 24/7 at Yangon International Airport.
- Appropriate medical equipment and drugs are in place at Yangon International Airport.
- Training is given on basic life support for health staff.

#### *Areas which need strengthening/challenges*

- Cross border PoEs have no organizational set up for quarantine.
- There are limited measures for vector control and environmental safety and there are no animal quarantine personnel available.
- No trained personnel at designated ground crossing PoEs and passenger inspection.

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

#### *Strengths/best practices*

- Disease specific public health emergency response plans are in place at airports and ports.
- There have been previous experiences with SARS and recent experience with Ebola suspected patients and, based on lessons learned, facilities have been improved.
- There is daily reporting from airports, seaports, and cross border PoEs to the CEU.
- There is a coordination mechanism at Kawthaung border crossing for public health emergency response.
- There is a good multi-sectoral partnership at PoEs including regular meetings.

#### *Areas which need strengthening/challenges*

- There is no formal evaluation for PoEs response to Public Health Emergencies.
- There is limited capacity building for all hazards including chemical and radiation emergencies.
- More isolation and disinfection facilities are required.
- Multi sectoral cooperation is required for PoEs preparedness plan during normal period.

# Chemical events

## Introduction

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

### Target

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

## Myanmar level of capabilities

Responsibility for chemical emergency related functions in Myanmar is fragmented; no single government authority has primary responsibility for chemical event surveillance, monitoring, assessment, and response. The Ministry of Industry has responsibility for chemical safety. The Ministry of Natural Resources and Environmental Conservation has proposed a draft law for environmental surveillance and monitoring, and has in the past conducted some environmental monitoring. The MoHS has several units that conduct relevant activities: the Poison Treatment Centre (PTC) at the New Yangon General Hospital provides tertiary and reference hospital services following its own case management guidelines, as well as generating morbidity and mortality data which is submitted on a monthly basis to the National Poison Control Centre, Department of Medical Research; the Occupational Health and Environmental Health unit (OHEH) generates an annual report on poisoning cases, as does the National Poison Control Centre (NPCC).

Laboratory analysis capacity is limited to testing by OHEH, NPCC, and the Chemical Examination Department (CED) within the Ministry of Home Affairs for lead, organophosphates, and a few pharmaceuticals such as acetaminophen in human biological samples. The OHEH and the DMR carry out occasional projects involving environmental monitoring of water, air, and soil samples. Food and Drug Administration conducts testing of food in its laboratories but detailed data need to be obtained. There is no comprehensive national inventory of chemical threats within the country.

No chemical risk assessment process is currently documented to trigger coordinated response operations. There is no national chemical response contingency plan, although the draft national CBRN plan is intended to serve that purpose when it is finalized. No exercises have been conducted, so government units with currently identified responsibilities have not practiced working together in the event of a chemical event of national significance.

## Recommendations for priority actions

- Finalize and approve the national CBRN contingency plan, which defines authorities, roles, and responsibilities across the whole of government for chemical event surveillance, alert, and response.
- Develop SOPs for chemical event detection, assessment, and response operations.
- Develop an integrated national chemical surveillance system, which incorporates laboratory analysis and centralized reporting of chemical events to the national PHEOC.

## Indicators and scores

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

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

- Case management guidelines exist at the PTC. Individual government units have their own guidelines and procedures (though not integrated with each other).
- Some limited analytical capacity exists within the current government laboratories.

#### ***Areas which need strengthening/challenges***

- A comprehensive set of SOPs needs to be created to standardize all chemical surveillance, monitoring, risk assessment, reporting, and response operations.
- An integrated national chemical surveillance system needs to be established, building upon the existing capacities.
- Information exchange between government units having chemical event responsibilities needs to be initiated, to include centralized reporting of all chemical event data to the national Public Health EOC.
- The poison treatment centres outside the national capital should be adequately resourced to provide redundant national treatment cap.

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

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

- Proposed legislation has been drafted for chemical safety as well as for chemical surveillance and monitoring.
- A national CBRN team has been formed.
- A chemical reference database is available at the Ministry of Industry.

#### ***Areas which need strengthening/challenges***

- The draft national CBRN plan needs to be finalized and approved for dissemination; this plan needs to clearly define the authorities as well as the specific roles and responsibilities of the various government agencies with a stake in chemical event management.

# Radiation emergencies

## Introduction

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

### **Target**

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

## Myanmar level of capabilities

Multiple government units have roles to play in radiation emergencies under various existing authorities, including the MoHS, the Ministry of Industry, the Ministry of Natural Resources and Environmental Conservation, the Ministry of Electricity and Energy, the Ministry of Home Affairs, the Custom Department (Ministry of Planning and Finance -MOPF), the Ministry of Transportation, the Ministry of Commerce, and the Ministry of Social Welfare, Relief and Resettlement. The Division of Atomic Energy (DAE) within the Ministry of Education is currently the lead agency for radiation surveillance/monitoring, performs a regulatory inspection function, conducts workplace monitoring, and manages the Emergency Response Programme for radiation accidents.

Although there is no nuclear power industry in Myanmar, several of its neighbours have nuclear power, and there are a number of radiation sources (primarily for medical radiotherapy) within the country. Existing sources are registered through DAE, and unused sources are stored by DAE until they are returned to their country of origin; security is planned to be installed for both the hospital sources as well as DAE's storage facility. DAE also monitors radiation levels in air, water, rain water, and foodstuffs through its own laboratory, provides dosimetry support and maintains health surveillance records on radiation workers, provides radiation safety training at the undergraduate and graduate levels, and conducts a public awareness programme through its web site.

There is currently no comprehensive plan across all government units for the management of radiological emergencies. The draft CBRN plan, when finished and approved, is intended to fulfil that function; it addresses prevention, detection, preparedness, and response functions. Although some procedures are documented, there is no comprehensive set of implementing SOPs for radiation detection, assessment, and response functions, nor is there an exercise programme to drive familiarity and improvements in these procedures.

## Recommendations for priority actions

- Finalize and approve the national CBRN contingency plan, which defines authorities, roles, and responsibilities across the whole of government for radiological event surveillance, alert, and response (to include designating a radiological/nuclear focal point for coordination and communication with the IHR NFP).
- Develop SOPs for radiation detection, assessment, and response operations.
- Develop an integrated national radiological surveillance system which incorporates laboratory analysis and centralized reporting of radiological events to the national PHEOC.

## Indicators and scores

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

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

- Several laws already exist to support elements of radiation emergency management, such as the Atomic Energy Law and the Counter-Terrorism Law.
- Current workplace monitoring and laboratory analyses conducted by the Division of Atomic Energy (DAE) contribute to the detection of radiological and nuclear emergencies.
- Some guidelines and SOPs also exist.

#### ***Areas which need strengthening/challenges***

- Current authorities, roles, and responsibilities among the various government units need clarification and updating; the proposed Myanmar Nuclear Law, which will bring Myanmar in compliance with the International Atomic Energy Agency (IAEA) standards, may assist with this.
- A comprehensive set of SOPs for detection, risk assessment, reporting, event confirmation and notification, investigation, and response need to be developed.
- Routine real-time information exchange between radiation authorities and health authorities does not currently happen

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

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

- A proposed radiation emergency contingency plan (the CBRN plan) has been drafted; this however, still needs to be finalized and approved.

#### ***Areas which need strengthening/challenges***

- Prior to recent reorganization, DAE's Director General served as the designated focal point for coordination and communication of radiological emergencies with the IHR NFP; who the current designated focal point official is needs to be clarified.
- Exercising contingency plans and SOPs is currently not conducted and needs to be implemented.

# Annex 1: JEE background

## Mission place and dates

Nay Pyi Taw, Myanmar: 2-9 May 2017

## Mission team members:

- Dr Bardan J Rana, Regional Advisor, IHR, World Health Organization, SE Asia Regional Office (Team Lead)
- Professor Hendrik Jan Ormel, Senior Veterinary Policy Advisor, Food & Agriculture Organization of the United Nations (Team CO-Lead)
- Ms Zainab Sonnah Bangura MA, Report writer, United Kingdom
- Ms Tina Endericks, Public Health England, United Kingdom
- Dr Darren Hunt, Public Health Physician, New Zealand
- Dr R P Palitha Karunapena, Community Physician/Director of Quarantine, Ministry of Health, Sri Lanka
- Peter Rzeszotarski, Centre for Disease Control (CDC-USA)
- Dr Rajesh Sreedharan, Medical Officer, World Health Organization, Geneva
- Dr Thomas Tolfsenstam, Public Health Agency of Sweden

## Objective

To assess Myanmar's capacities and capabilities relevant to the 19 technical areas of the JEE tool to provide baseline data to support Myanmar's efforts to reform and improve 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 were collaborative, with JEE team members and host country experts seeking full agreement on all aspects of the final report findings and recommendations.

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

## Preparation and implementation of the mission

- Prior to the visit teleconferences were held with the team of experts to review the agenda, responsibilities, and logistics.
- The JEE process in Myanmar was launched on 6th February 2017. A training course was conducted on the 7th and 8th February 2017 to provide all the national stake holders with the information and resources necessary to participate in the JEE process, including guidance on self-reporting requirements and responsibilities for the process.
- Background documents were collected and shared with the JEE team along with the complete JEE tool for review.
- Meetings with the relevant stake holders and field visits were conducted to validate the collected information.
- A consensus was reached with the nationals with regards to the scores and priority actions.
- A debriefing meeting with senior officials and national technical teams involved in the evaluation took place to present the outcome of the JEE, best practices and priority actions.
- The press was invited to take pictures and publish the outcome of the JEE.
- The Minister of Health & Sports thanked the JEE team, technical staff and the stakeholders for their hard work and contribution. He acknowledged the importance of the priority actions and the commitment to take on board the priorities identified using a systematic approach.

## 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 publicly available.
- The evaluation is not an audit. Information provided by Myanmar 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

### Myanmar's lead representative:

- Ministry of Health & Sports
- Union Minister of Health & Sports
- Permanent Secretary

### Other Ministries and Partners

- Union Ministry of Health and Sports
- Union Ministry of Agriculture Livestock and Irrigation (Livestock Breeding and Veterinary Department, Department of Agriculture)
- Union Ministry of Transport and Communications (Department of Civil Aviation, Myanmar Port Authorities)
- Union Ministry of Planning and Finance (Customs Department)
- Union Ministry of Labour, Immigration and Population (Department of Immigration)

- Union Ministry of Information
- Union Ministry of Natural Resources and Environmental Conservation (Department of Forestry)
- Union Ministry of Defence
- Union Ministry of Foreign Affairs
- Union Ministry of Home Affairs (Attorney General Office, Myanmar Police Force, General Administration Department)
- Union Ministry of Social Welfare, Relief, and Resettlement (Department of Relief and Resettlement)
- Union Ministry of Education (Department of Atomic Energy)
- City Development Council
- Myanmar Medical Association

## **Supporting documentation provided by host country**

### **National legislation, policy and financing**

- The Prevention and Control of Communicable Diseases Law (3/1995)
- The Law Amending the Prevention and Control of Communicable Diseases Law (1/2011)
- The Public Health Law (1972)
- The Animal Health and Development Law (1/1993)
- The Pesticide Law (1/2016)
- The Natural Disaster Management Law (7/2013)
- The National Food Law (5/1997)
- The Poisons Law (7/1919)
- The Myanmar Marine Fisheries Law (4/1990)
- Myanmar National Health Plan 2017-2021
- Action Plan for Disaster Mitigation, Management, and Health Care (Draft)
- Standing Order on Natural Disaster Management in Myanmar (2010)

### **IHR coordination, communication and advocacy**

- The Contingency Plan for Emergency Control of Low Pathogenic Avian Influenza (LPAI) (2016)
- Contingency Plan for Emergency Control of Highly Pathogenic Avian Influenza (HPAI)
- SOP for MERS-CoV Surveillance and Prevention
- Infectious Disease including MERS-CoV/ H7N9 Surveillance and Response Plan at Yangon International Airport and Seaport
- Action Plan for Ebola Prevention and Control
- National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response
- Disease Surveillance Guideline
- Emergency Health Care Management Plan for Disaster

- National Strategic Plan for Preparedness and Response to Zika Virus Infection (2016)
- Environmental Surveillance for detection of Polio virus (SOP-2016)
- Instruction for EOC to response Flood and other disasters (2016)
- Instruction for preparedness and response on Cyclone (2016)
- SOPs for Management of Heat Related Illness
- National Plan for Prevention and Response on Health Problems Relating El Nino (2016)
- Myanmar Action Plan on Disaster Risk Reduction (MAPDRR) 2012
- Standing Order on Natural Disaster Management in Myanmar (2010)
- National Implementation Plan for CBRN (Draft)
- The Prevention and Control of Communicable Diseases Law (3/1995)
- The Law Amending the Prevention and Control of Communicable Diseases Law (1/2011)
- The Contingency Plan for Emergency Control of Low Pathogenic Avian Influenza (LPAI) (2016)
- Contingency Plan for Emergency Control of Highly Pathogenic Avian Influenza (HPAI)
- The Animal Health and Development Law (1/2008)
- National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response
- Acute Encephalitis Syndrome Surveillance Field Guide (2016)
- The Myanmar Marine Fisheries Law (4/1990)
- The Law Relating to the Fishing Rights of Foreign Fishing Vessels (4/1989)

### **Antimicrobial resistance**

- National Action Plan for containment of Antimicrobial Resistance in Myanmar 2017-2022 (not yet approved)
- National List of Essential Medicines (NLEM), 2016
- Hospital Infection Control Guidelines (2016)
- National Policy on Health Laboratories in Myanmar
- National Strategic Plan for Health laboratories
- Medical Laboratory Waste Management Instruction
- Instruction for Laboratory aspect of IPC Instruction for Sample collection, storage, and transportation
- Certificate of EQAS participation
- HIV management guidelines in Myanmar
- TB infection control manual (2nd Edition)
- National TB control manual
- National Drug Law

## Zoonotic diseases

- Monthly surveillance reports
- National One Health strategic framework and action plan of Myanmar (2016-2019)
- Joint outbreak investigations report, CEU
- FETP participants lists (CEU)
- Animal Health and Development Law (17/93)
- OIE PVS report (2009)
- Avian Influenza surveillance report

## Food safety

- Guideline for food poisoning
- Food poisoning response document (CEU)

## Biosafety and biosecurity

- Hospital Infection Control Guidelines
- National Policy on Health Laboratories in Myanmar (provided and includes remit)
- National Strategic Plan for Health laboratories
- Guidelines on Biosafety and Biosecurity in Biomedical laboratory
- Medical Laboratory Waste Management Instruction
- Instruction for Laboratory aspect of IPC Instruction for Sample collection, storage, and transportation
- TB infection control manual (2nd edition, 2017)

## Immunization

- Comprehensive Multi Year Plan (2017-2021)
- Effective Vaccine Management report (2015)
- Myanmar Comprehensive Effective Vaccine Management Improvement Plan 2016-2021
- JRF report (2016)
- Report of EPI review (2016)

## National laboratory system

- National Policy on Health Laboratories in Myanmar
- National Strategic Plan for Health laboratories
- Certificate of International EQAS participation
- NEQAS report of HIV
- NEQAS report of Syphilis
- Sample collection and transportation guideline

## Real-time surveillance

- Communicable Diseases Laws
- Degree for notifiable diseases by LBVD
- AFP and VPDs surveillance guidelines
- SOPs for VPDs cases reporting
- Epidemiology Bulletin
- Outbreak report shared by WHO on Zika, CVDPV, Naga Measles Outbreak, Pyay Diarrhoea outbreak
- Myanmar CDC Facebook
- Outbreak reports by Viber
- Myanmar CDC roadmap

## Reporting

- Annual Self-evaluation of IHR, 2016
- MBDS cross border report, 2016
- Risk Assessment Report for Zika, 2016
- Zika case report to WHO, 2016
- Information sharing with Thailand and Singapore relating on Zika, 2016
- Pyay Diarrhoea Outbreak Report to WHO, 2016
- Joint risk assessment on Ebola, 2015
- circulating Vaccine Derived Poliovirus Report to WHO, 2015

## Workforce development

- Health Workforce Strategic Plan (2012-2017)
- FETP curriculum
- MPH/MPTM/M(HA&HM), M. Comm H and other public health related training curriculum
- Work plan Activity Matrix: Support to strengthen Management of Human Resources for Health (JPHIEGO)

## Preparedness

- Standing Order on Natural Disaster Management in Myanmar (2009)
- Myanmar Action Plan on Disaster Risk Reduction 2010-2015
- Contingency Plan for Emergency Control of Low Pathogenic Avian Influenza (2016)
- Contingency Plan for Emergency Control of Highly Pathogenic Avian Influenza
- Infectious Disease including MERS-CoV/ H7N9 Surveillance and Response Plan at Yangon International Airport and Seaport
- Action Plan for Ebola Prevention and Control
- National Strategic Plan for Prevention and Control of Avian Influenza and Human Influenza Pandemic Preparedness and Response
- Emergency Health Care Management Plan for Disaster

- National Strategic Plan for Preparedness and Response to Zika Virus Infection (2016)
- Action Plan for Disaster Mitigation, Management, and Health Care (Draft)
- National Plan for Prevention and Response on Health Problems Relating El Nino (2016)
- Myanmar Action Plan on Disaster Risk Reduction 2012
- Expanded Program on Immunization Multi Year Plan 2017-2021
- National Implementation Plan for CBRN (Draft)

## **Emergency response operations**

- Surveillance and Outbreak Investigation Guidelines
- National One Health Strategic Framework and Action Plan of Myanmar (2016-2109)
- Disaster Management Guidelines
- Guidelines for stool sampling from contacts of AFP cases
- Diarrhoea Investigation and Control Guideline
- After action review and situation report for Cyclone Roanu
- National Strategic Plan for Preparedness and Response to Zika Virus Infection
- Ebola Surveillance Instruction SOP
- Influenza (H7N9) Instruction SOP
- MERS CoV Instruction SOP
- Zika Instruction SOP
- National Polio Outbreak Preparedness and Response Plan
- National Guideline for Human Rabies Prophylaxis

## **Linking public health and security authorities**

- Standing Order on Natural Disaster Management
- Myanmar Action Plan on Disaster Risk Reduction

## **Risk communication**

- National Disaster Standing order (2009)
- Pandemic Influenza preparedness plan (2006)
- MRTV Health Sector TV Spots (2016-2017)
- Various meeting notes
- Zika Press Release and FAQ from hotline documents
- Various IEC materials
- Disaster Management Plan
- Organization Chart
- Reports on local at-risk populations
- Surge capacity plan

## Points of entry

- Preparedness Plan for POEs
- Daily Reporting from POEs
- Joint Assessment on Ebola, 2015
- Advocacy meeting for Ebola, MERS-CoV and Zika
- CME at POEs

## Chemical events

- Disaster Preparedness and Response Standing Order
- National CBRN Plan (draft)
- Chemical Safety Law (draft)
- Chemical Surveillance and Monitoring Law (draft)
- Case Management Guidelines for Poisonings

## Radiation emergencies

- Atomic Energy Law
- Counter-Terrorism Law
- Myanmar Nuclear Law (draft)
- CBRN Plan (draft)







