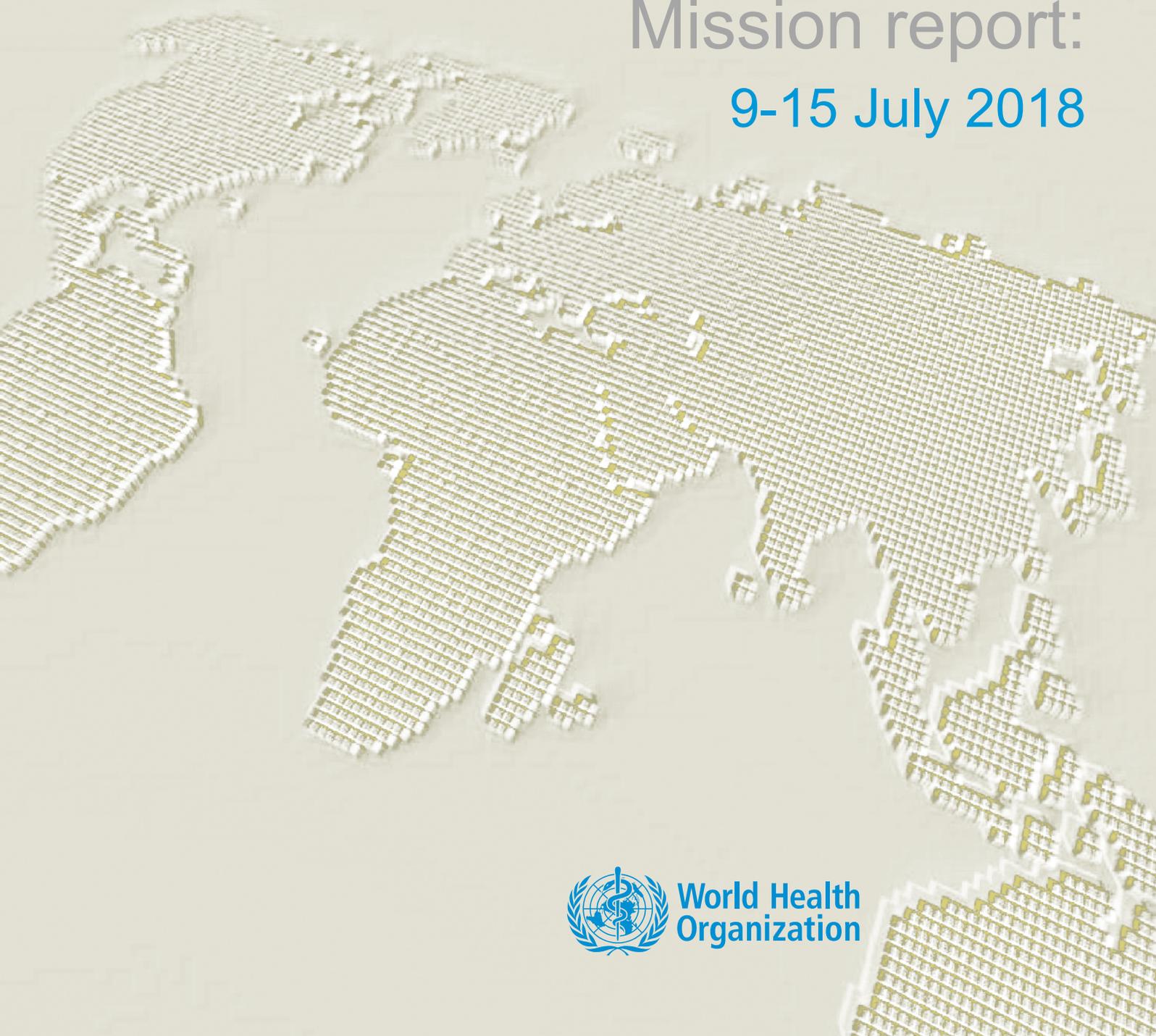


JOINT EXTERNAL EVALUATION OF IHR CORE CAPACITIES

of

LIBYA

Mission report:
9-15 July 2018



World Health
Organization

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Acronyms and abbreviations

AMR	antimicrobial resistance
ASP	antibiotic stewardship programme
BSL	biosafety level
CBRN(e)	chemical, biological, radiological, nuclear (and explosive)
CCHF	Crimean–Congo haemorrhagic fever
CPHL	Central Public Health Laboratories
EOC	Emergency Operations Centre
EPI	Expanded Programme on Immunization
EQA(S)	External Quality Assurance (Scheme)
FAO	Food and Agriculture Organization of the United Nations
FETP	Field Epidemiology Training Programme
GCC	Gulf Cooperation Council
HCAI	health care-associated infection
IHR	International Health Regulations (2005)
IPC	infection prevention and control
JEE	Joint External Evaluation
MCM	medical countermeasures
MDR	multidrug-resistant
MECA	Ministry of Environment and Climate Affairs
MERS-CoV	Middle East respiratory syndrome coronavirus
MoAF	Ministry of Agriculture and Fisheries
MoH	Ministry of Health
NCCD	National Civil Committee of Defence
NFP	National Focal Point
NLMC	National Laboratory Medicine Committee
OIE	World Organisation for Animal Health
PHEIC	public health emergency of international concern
PoE	point(s) of entry
PVS	performance of veterinary services
SOP	standard operating procedure
WHO	World Health Organization

Executive summary

The following themes emerged as priorities for action for Libya to achieve a level of capability to maintain health security at full compliance with the International Health Regulations (IHR) (2005).

Major findings

Libya has several national laws dealing with the implementation of IHR (2005). Legislature exists in the public health domain, and in other sectors relating to the various IHR Core Capacities. However, there is neither a unified legal framework encompassing all these legislative tools, nor a clearly defined and endorsed mechanism to coordinate actions in putting together these multi-sectoral legal instruments and come up with a much needed framework of intervention. There is strong evidence of the existence of a prolific basis of laws and regulations that are not put to good use. Operationalizing these documents and maximizing their application is a very important step before calling for the development of new laws. Advocacy and awareness-raising among leading personnel (i.e. managers and senior Ministerial staff) is seen as a key area for intervention to facilitate the creation of the mentioned legal framework and coordination mechanism.

The National Center for Disease Control (NCDC) is adopted by the National authorities as the IHR National Focal Point (NFP) responsible for following the implementation of the core capacities required by IHR-2005 regulations and has the authority to communicate directly with WHO. The IHR focal point (NCDC) achieved bringing all sectors related to implementation of the IHR in Libya into one committee to fulfill the IHR requirement to develop, strengthen and maintain national minimum public health capacities. There is need to develop standard operating procedures (SOPs) on coordination and communication between NFP and other relevant sectors and to identify the roles and responsibilities of each stakeholder in implementing IHR core capacities. Conducting simulation exercises would enhance coordination and communication among the IHR relevant sectors.

The main needed capacities for detecting, preventing and controlling antimicrobial resistance (AMR) have not been established yet in Libya. The concept of the one health approach has not been activated and reflected in the AMR combat process. Besides, the absence of national guidelines and programs in Infection Prevention & Control (IPC), Surveillance and Antimicrobial Stewardship Programmes are major challenges at the human and the animal sectors.

Coherent collaboration and coordination between animal and public health sector is in place and a memorandum of understanding was signed to strengthen and regulate this collaboration but unfortunately it is limited to respond to suspected zoonotic outbreak. National programs including surveillance, needed to combat zoonotic diseases, especially for the six high priority zoonotic diseases have been identified by the country.

The Food and Drug Control Center (FDCC) is responsible for food safety in Libya, designated to guarantee the quality of food for human consumption through five control points distributed among five central ports in Libya. Despite presence of effective program for testing of imported and exported products, there is illegal importation of food. Operational links are established between surveillance, response staff, food safety, animal health and laboratories, but needs to be formalized and documented.

The Libyan national committee for biosafety and bioethics (LNCBB) was founded by the government as a mechanism for the implementation, oversight, enforcement and attribution for biosafety, biosecurity legislations, regulations and guidelines in the country. The committee established partnerships in country (with Ministry of health and NCDC, Libyan environment general authority, NCAH, ministry of education)

and overseas (with the World Health Organization, Sandia national laboratories, U.S. civilian research and development foundation, World Organization for Animal health, Georgetown University). Biorisk management courses have been adopted in many universities. There is still no governmental decree governing the implementation of the biosafety and biosecurity program. Draft legislation on bio-waste management has not been endorsed by the Libyan authority. Laboratories are not equipped to implement the program. There is serious lack of funding for the area of bioeafety and biosecurity.

The national laboratory system in Libya (public health, animal health, food safety, and environmental laboratories) can conduct rapid and conventional detection, characterization, confirmatory testing, data reporting, investigative support, and laboratory networking to address actual or potential exposure to public health hazards. This capability supports routine surveillance, including pre-event or pre-incident and post-exposure activities. The national laboratory has the human resources and the technology to detect outbreaks or hazards of public health efficiently. Coordination is prominent during events of public health concern. National laboratories established strong link with regional and international organizations in building capacities, training, and external assessment programs. Due to the current situation and lack of resources, there is a shortage of reagents and consumables for testing priority diseases.

The national immunization programme of Libya has developed capacities despite the challenges and difficulties that the country is undergoing. However, improvements are still needed to have a rigorous monitoring mechanism to the cold chain and vaccine management system. Improving the vaccines procurement process to avoid the frequent reported stock out of some vaccines is highly needed to maintain high vaccination coverage with good access and delivery.

The National Center of Disease Control (NCDC) under the Ministry of Health has a key role in public health surveillance. Indicators and an event-based surveillance system are in place to detect the majority of public health threats. EWARN is also in place and functional for public health. However, real time surveillance is limited by a poor participation of the private sector which is particularly important with the current influx of migrants/refugees from sub-Saharan countries. Collection and reporting of surveillance data are in paper format. Electronic reporting systems are utilized in human health for EWARN only, but there is a plan to implement electronic reporting surveillance system. Better coordination between different departments/agencies within health system in disease surveillance requires a national strategy.

In order to ensure timely and efficient reporting of relevant PHEIC to WHO and zoonotic diseases to OIE, there is a need for simulation exercises or after-action reviews where the strengths and weaknesses are identified, and measures are taken to boost the existing reporting system. There is also a need for the establishment of protocols, processes and regulations for multisectoral coordination to achieve timely and efficient reporting within 24 hours.

The Libya strategic plan for workforce development has been designed but not implemented and there is lack of coordination among IHR relevant sectors in human resource development. The limited workforce that exists is concentrated in big cities and not distributed to remote areas, causing poor IHR performance in the latter. Linkages have been established with EMPHNET for the Field Epidemiology Training Program (FETP); this collaboration will enhance country FETP building capacity while Libya establishes its own national FETP. As the program is two years, it is recommended to bridge the workforce gap by training personnel on the three months "public health empowering/basic field epidemiology program". It is envisioned that building the capacity of all administrative and managerial personnel within key Ministries in IHR-related public health matters would broaden the advocacy base for IHR and bring workforce development issues to the forefront.

In order to achieve preparedness for public health emergencies, Libya needs to dedicate a specific organization or institute as the responsible body and activate or establish legislation and national guidelines for any public health emergency as well as review existing emergency preparedness and response plans to ensure an all hazards approach is adopted. Risk and hazard mapping is a crucial step in this exercise and the availability of sufficient funds is mandatory.

The challenges hindering effective public health response can be defined as a lack of clear national strategic plan for crises management; lack of resources; lack of well trained staff; and lack of proper coordination among involved sectors. To improve that, there is a need to develop PHEIC standard operating procedures, establish an Emergency Operations Center (EOC) management structure to identify the basic roles including Incident management or command, Operations, Planning, Logistics and Finance and to review the case management guidelines for other IHR relevant hazards (nuclear, chemical, zoonotic and food safety) as well as to strengthen coordination during emergency by running simulation exercises and testing the existing systems and structures.

The linkage between public health and security authorities only happens in response to emergencies. There is a need to establish Memorandum of Understanding (MOU) or agreements between public health and security authorities, conduct public health emergency response exercise and develop a regular reporting system, while strengthening communication between public health and security authorities.

Libya has sent and received medical teams in the past. However, this has been crippled by the situation of the health system in the last few decades. There is need to establish a comprehensive plan for medical countermeasures, with detailed SOPs for the logistics and procurement of medical supplies and a list of relevant stockpiles to be made available in country. It is also important to specify the procedures and timelines for deployment of both personnel and supplies in relation to public health measures requiring external support.

The ongoing state of emergency has given little room for recovery of health services including health communication capacities. The leading role of timely and relevant communication in case of public health threats is not well defined between the different actors. There is a need for all concerned authorities to support and prioritize risk communication on the national agenda, identifying and bringing all communication key players under one roof to endorse appropriate institutionalization and funding. The development of a risk communication strategy spearheaded by a national multi-sectorial taskforce will lead to formalized and streamlined communication efforts, thus improving organizational collaboration and coordination during emergencies.

There are 24 points of entry in Libya. Twelve of them are out of service and none is designated for implementation of IHR. Inspection programs for routine capacities ensuring a safe environment for travelers including potable water control, food safety, vector control and solid and liquid waste management are absent. Public health competent authority in PoE is not identified, nor does there exist a mechanism for coordination and communication between the relevant stakeholders. Points of Entry do not have a public health emergency contingency plan, and all of them are under the authority of the NCDC. Health control officers can reach out to IHR-NFP if it's needed.

Libya's capacity to respond to chemical events related to petrochemical industries was effective before the current crises. Along with the implementation of the destruction of chemical weapons, Libya's capacities and experience in dealing with waste and hazardous chemicals in terms of destruction, as well as in the field of control, detection and decontamination were improved. Unfortunately, both types of expertise are scattered and not properly documented. Old laws, policies and SOPs are available. Capacities for detecting and managing chemical events are now lacking and scattered between different stakeholders. Capacities will improve upon approving and implementing the National Plan for Responding to Environmental Emergencies, and the Proposed National Emergencies Management System. Efforts should focus on strengthening coordination mechanisms between all sectors; developing strategy and action plan for surveillance; responding to chemical events; and strengthening the health sectors capacity for clinical management of cases exposed to toxic chemicals.

The Libyan Atomic Energy Establishment (LAEE) and its Nuclear Regulatory Office (NRO) are mandated to regulate and manage the use of radioactive materials in all sectors in Libya. A draft new law awaits approval through the official channels. The law covers all the relevant aspects including: establishment of an independent regulatory authority, nuclear installations, facilities and activities, radiation safety, nuclear safety and security, transport safety, radioactive waste management, and emergency preparedness and response. Capacities for detecting and managing radiation emergencies are lacking. Approval and implementation of the draft nuclear law will improve such capacities and efforts should be focused on strengthening coordination mechanisms between all related sectors; developing a national surveillance system for detecting exposure to radiation; strengthening the health sectors capacity for clinical management of cases exposed to radiation, and coordinating risk assessment, communication, planning and monitoring during urgent radio-nuclear events and potential risks of international concern.

Libya scores

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

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

PREVENT

National legislation, policy and financing

Introduction

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

Target

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

Libya level of capabilities

Libya has several national laws dealing with the implementation of IHR (2005). Legislature exists in the public health domain, and in other sectors relating to the various IHR Core Capacities. Libya has regulations that pertain to sectors beyond health, and deal with IHR issues. These include regulations on ports of entry and how to deal with chemical events. There is strong evidence of the existence of a prolific basis of laws and regulations that are not put to good use. However, there is neither a unified legal framework encompassing all these legislative tools, nor a clearly defined and endorsed mechanism to coordinate actions in aligning these multi-sectoral legal instruments, and defining the much needed framework of intervention.

Opinions varied from believing that existing laws are entirely sufficient to facilitate the implementation of the IHR and a strong conviction that a legislative gap exists, warranting the development and endorsement of new laws concerned with IHR implementation. The former opinion advocates a thorough review and operationalization of existing laws. However, there is agreement that amending existing laws or establishing new ones is difficult due to political instability.

Coordination between administrative and technical sectors concerned with IHR implementation is evidently weak. And there is insufficient funding to meet Libya's obligations to meet the requirements of the IHR.

Advocacy and awareness raising among leading personnel (i.e. managers and senior Ministerial staff) is seen as one of the key areas for intervention, to facilitate the creation of the needed legal framework and above mentioned coordination mechanism.

Operationalizing existing laws and maximizing their application is a very important step before calling for the creation of new laws. Such operationalization would be easier when a package of training for senior and middle managers in the various sectors related to IHR implementation is developed and implemented and advocacy goals defined and pursued to ensure that the top-tier and second-tier Ministerial levels endorse and push forward the agenda of IHR implementation.

There is need to establish cross-border agreements, protocols or memoranda of understanding (MoUs) with neighbouring countries regarding public health emergencies.

The National Center for Disease Control intends to spearhead this process to achieve the goals of establishing a national framework for coordination among the relevant sectors for IHR implementation as a step towards reviewing and amending the sectoral laws and ensuring they are aligned with the updated IHRs.

Recommendations for priority actions

- Establish national framework for coordination among the relevant sectors to ensure establishment of an implementation mechanism for the International Health Regulations 2005.
- Amend the specific sectoral laws dealing with IHR implementation in line with the updated IHRs 2005.

Indicators and scores

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

Strengths/best practices

- Several legislations, regulations, administrative requirements and other governmental instruments governing public health surveillance and response exist in Libya.
- An assessment of relevant legislation, regulations or administrative requirements, and other governmental instruments has been carried out (to determine if they facilitate full implementation of the IHR and gaps have been identified).

Areas which need strengthening and challenges

- There is need to establish cross-border agreements, protocols or memoranda of understanding (MoUs) with neighbouring countries with regard to public health emergencies.

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 practices

- Adjustment needs for relevant legislation, regulation, administrative requirements and other government instruments for IHR (2005) implementation identified.
- There is evidence of using relevant legislation and policies in various sectors involved in the implementation of IHR (e.g. see decision 947 (2013) on adoption of NCDC organizational chart).
- Adoption of (NCDC).
- Libya's legislation addresses areas other than NFP function (designation and its operation) e.g. regulations on ports of entry, how to deal with chemical events). Some of these areas pertain to sectors beyond public health

Areas which need strengthening and challenges

- There is a gap in coordination of the legal and regulatory frameworks between sectors.

IHR coordination, communication and advocacy

Introduction

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

Target

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

Libya level of capabilities

The National Center for Disease Control (NCDC) is adopted by the National authorities as the IHR National Focal Point (NFP) responsible for following the core capacities implementation required by IHR (2005) regulations and has the authority to communicate directly with WHO.

The IHR NFP achieved bringing all sectors related to implementation of the IHR in Libya into one committee to fulfill the IHR requirement to develop, strengthen and maintain minimum national public health capacities. Multi-sectoral coordination for IHR implementation exists to a certain degree.

There is information exchange between animal and human health surveillance units, laboratories, and other relevant sectors regarding potential zoonotic risks and urgent zoonotic events. NCDC regularly communicates and exchanges reports with the National Center for Animal Health (NCAH).

Action plans are developed to incorporate lessons learnt of multi-sectoral/disciplinary coordination and communication mechanisms. The H5N1 event in 2015 gave a chance to the country to test its capacities and scrutinize the coordination mechanism between the animal and human sectors. After the H5N1 outbreak in 2015, the NCDC and NCAH Signed an Agreement (2016) for coordination in zoonotic disease events.

The updates of IHR implementation are shared by NCDC with other relevant sectors. Regular meetings occur and sharing of meeting reports with relevant sector directors is emphasized.

Reporting of PHEIC to WHO and World Organization for Animal Health (OIE) is carried out, despite some delays. An analysis of the reason of such delay exposed weaknesses in the transfer of information from rural areas of the country to the central level. This is due to variations in the level of capacity between central and rural areas. Most of the skilled and better trained personnel are concentrated in big cities like Tripoli and Benghazi.

The functions of the IHR NFP are regularly reviewed and evaluated. As a result, gaps are regularly identified. Improvements are needed in the areas of coordination between the NFP and other relevant sectors, identifying the roles and responsibilities of each stakeholder in implementing the IHR core capacities and testing the functionality of existing systems through simulation exercises.

Recommendations for priority actions

- Develop standard operating procedures (SOPs) on coordination and communication between NFP and other relevant sectors.
- Identify the roles and responsibilities of each stakeholder and their roles in the implementation of the IHR core capacities.
- Conduct exercises to enhance the coordination and communication mechanisms among the IHR relevant sectors.

Indicators and scores

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

Strengths/best practices

- A multisectoral committee ensures IHR implementation.
- Efficient reporting is carried out of PHEIC to WHO and OIE.
- During a public health event, coordination exists among all the relevant sectors.

Areas which need strengthening and challenges

- In-country delays - from remote areas to the capital - in notification of routine diseases events.
- No defined protocols, no memoranda of understanding or clear procedures among IHR relevant sectors.

Antimicrobial resistance

Introduction

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

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

Target

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

Libya level of capabilities

The main needed capacities for detecting, preventing and controlling antimicrobial resistance (AMR) haven't been established in Libya yet. The shortage of qualified human resources to support AMR combat measures, as well as the absence of national guidelines and programs in Infection Prevention & Control (IPC), Surveillance and Antimicrobial Stewardship programmes, are major challenges.

Libya hasn't established a national multidisciplinary, multi-sectoral committee to combat AMR representing concerned ministries and institutions. However, a technical working group from the Ministry of Health (MOH) is currently drafting the AMR national action plan and operational budget, with the support of WHO Regional Office for the Eastern Mediterranean (EMRO). Once finalized, the plan will be submitted to be endorsed by H.E Minister of Health.

The national IPC plan/programme hasn't been developed yet. However, there are several cohorts of graduated infection control professionals from the National Centre for Disease Control (NCDC) over the past few years. In addition to the lack of a national IPC manual, with guidelines and policies, there is a shortage of needed personal protective equipment (PPE) and the limited equipped isolation units at healthcare facilities and the shortage of assigned IPC staff in healthcare facilities represent a major challenge.

At the country level, the NCDC lab is participating in the EQA program supported by WHO, additionally there are 96 public health hospitals distributed all over the country, beside the unidentified number of private hospitals and laboratories. None of them apply the Clinical & Laboratory Standards Institute (CLSI) guidelines.

Despite an absence of standardized functional AMR surveillance in public health or university hospitals, a recent research study revealed that the overall prevalence of ESBL producing Enterobacteriaceae was 24.5%. *Klebsiella* spp. (54%) and *E. coli* (34.4%) were the leading ESBL producers.

Although a national antibiotic policy committee has been formulated at the NCDC, there is no national plan for antimicrobial stewardship programme (ASP) and there is no real actual implementation to the ASP components at health-care setting level. Furthermore, there are no updated national essential medicine list or standard infectious diseases treatment guidelines. Antibiotics for use in humans and animals are easy to acquire even without prescription

For the time being the concept of the one health approach has not been activated and reflected in the AMR combat process, there are no formal policies governing the one health approach, and Libya does not have AMR surveillance systems or ASP in place at the animal side. Furthermore, the laboratory capacity to detect WHO global Priority Pathogens List in animal health laboratories does not exist

Recommendations for priority actions

- Establish a national AMR committee representing relevant stakeholders with defined roles and responsibilities.
- Finalization & endorsement of a mutisectorial AMR national action plan.
- Establish a national Infection and prevention control programme.
- Establish an AMR surveillance system in the human and animal health sectors.

Indicators and scores

P.3.1 Antimicrobial resistance detection - Score 1

Strengths/best practices

- Designation of a national reference lab for public health (NCDC lab) that has the capacity to detect most of the priority pathogens.
- Available infrastructure (building, instruments, etc.) at most of the hospital laboratories.
- Well equipped laboratory for animal health.

Areas which need strengthening/challenges

- Unavailability of guidelines on detection and reporting of pathogens in both public health and animal laboratories.
- There is no reference laboratory for animal health.
- There is no National Laboratory Quality control management program in both public health and animal laboratories.
- Most laboratory staff have no skills and capacities for detection of priority pathogens.
- None of the public health and animal laboratories are accredited.
- Lack of proper supervision over the public hospital and private laboratories.
- No sustainable maintenance of laboratory equipment.
- The severe shortage in lab supplies and kits affecting severely the functionality of microbiology laboratories.

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

Strengths/best practices

- Leadership commitment to initiate AMR surveillance programme: MoH requested to be enrolled in the Global Antimicrobial Resistance Surveillance System (GLASS) framework.
- A few research studies have been conducted in the academic community as part of Master and Ph.D. thesis.

Areas which need strengthening/challenges

- There is no AMR national surveillance program at the human or the animal sector.
- There is no hospital-acquired infection or AMR surveillance guideline in the country.
- There is no surveillance activities, data collection or analysis for the AMR data at the human or the animal sector.

P.3.3 Health care-associated infection prevention and control programmes – Score 1

Strengths/best practices

- There are groups of graduated infection control professionals from the National Centre for Disease Control (NCDC) over past few years.

Areas that need strengthening/challenges

- There is no national IPC programme nor guidelines.
- There are no adequate resources for establishing and implementing infection prevention and control at the national and healthcare setting level.
- The severe shortage in PPE supplies.
- The shortage of assigned IPC staff in healthcare facilities.

P.3.4 Antimicrobial stewardship activities - Score 1

Strengths/best practices

- Formulation of national antibiotic policy committee at the NCDC.

Areas that need strengthening/challenges

- Lack of legislations and regulations governing antimicrobial use in human and animal settings.
- Lack of national Antimicrobial stewardship programme and guidelines.
- Deficiency of Infectious disease physicians and clinical pharmacists.
- Limited resources for research and improvement projects in health care facilities.
- No surveillance data for monitoring antibiotic use in humans and animal.

Zoonotic diseases

Introduction

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

Target

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

Libya level of capabilities

Libya has well-organized, collaborative zoonotic diseases departments at both animal and public health sectors. The National Center for Animal Health (NCAH) represents the national veterinary authority in the country, under the Ministry of Agriculture, Animal and Marine Wealth. NCAH includes department for zoonotic diseases control, as well as central and satellite/peripheral veterinary laboratories. The central veterinary lab, located in Tripoli, and satellite veterinary laboratories, distributed all over the country, are dedicated for providing diagnostic services, including sample analysis for granting permits to import and export animals and animal by-products. NCDC has a department for zoonotic disease control, public health laboratories including reference laboratory for parasitic and vector borne diseases.

Libya suffers the effects of illegal migration from sub-Saharan African countries and Asian countries. Most of those countries are endemic for several zoonotic diseases. Furthermore, the illegal animal movement/trade has additional impact on emerging and re-emerging of zoonotic diseases in the country. Migratory birds cross Libya through Mediterranean/Black Sea Flyway; whereas most of migratory birds' species spend part of their journey at Libyan wetlands. All the above-mentioned risk factors, introduce pathogens and diseases vectors into the country and consequently zoonotic diseases emergence along with other diseases.

The recent political unrest in the country has worsened the quality of health services, including national programs to combat zoonotic diseases.

The public health and animal health sectors have identified jointly and agreed on a list of priority zoonoses of public health concern namely: rabies, brucellosis, TB, Avian influenza and Plague that would help both sectors integrate their work and strengthen their collaboration. NCDC has a reporting system - the Disease Surveillance System - to report zoonotic diseases on an immediate, weekly and monthly basis. National Centre for Animal Health (NCAH) reports zoonotic diseases on an immediate, weekly and monthly schedule as well, but unfortunately, it suffers from weakness in recent years. Legislations and decrees support the multi-sectoral collaboration to have integrated system of surveillance for zoonotic diseases. Recently, to strengthen collaboration and coordination among relevant sectors, a memorandum of understanding was signed to enable and support systematic mechanisms for establishing interagency response teams in the event of a suspected zoonotic outbreak, including sharing reports and available information.

A list of diseases has been recorded during 2017 and reported by the country to OIE including Brucellosis, sheep pox, goat pox, and pest de petite ruminant. The latest reported notifiable disease was Low pathogenic avian influenza virus, in August 2017.

There is insufficient technical expertise and diagnostic laboratory capacity for zoonotic disease detection and response in the veterinary sector. Human resources are mostly allocated at central level, and have to serve the whole country, therefore additional well-trained staff needs to be designated to fulfill its mandate in combating zoonotic diseases. In addition, a surveillance plan for the high priority zoonotic diseases identified by the country needs to be developed and implemented to help in early detection and response to zoonoses.

Recommendations for priority actions

- Develop surveillance plan for high priority zoonotic diseases including early warning function.
- Develop SOPs for effective collaboration and information sharing on zoonotic diseases among relevant stakeholders including identification of roles and responsibilities of each entity.
- Develop and test preparedness and response plan for high priority zoonotic diseases.
- Review the workforce distribution at the different administrative levels and put in place programs to increase capacity.

Indicators and scores

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

Strengths/best practices

- Five high priority zoonotic diseases, in terms of public health concern, have been identified in the country using public health and animal health notification lists: Rabies, Brucellosis, TB, Avian Influenza and Plague.
- Functioning ad-hoc multi-sectoral collaboration and information sharing is in place in case of events of public health concern.
- Presence of Legislations and decrees which support the multi-sectoral collaboration.
- Memorandum of understanding between the NCDC and NCAH exists and is functional. It is concerned with zoonotic diseases surveillance, diagnosis, sharing information, building staff capacity.
- Animal Production Department at Ministry of Agriculture has developed an estimation of domestic animal population (animal inventory), based on the number of vaccinations disbursed to breeders; unfortunately, the disbursement of vaccinations has stopped because of the current country situation.

Areas which need strengthening and challenges

- Develop clear and documented national protocols for effective multi-sectoral communication and information sharing.
- Develop inventory of animals (domestic and wild life), using efficient mechanism.
- Periodic meetings among all relevant sectors to review and update surveillance plans and programs for zoonotic diseases detection and control to be conducted.

P.4.2 Veterinary or animal health workforce – Score 2

Strengths/best practices

- There are veterinarians among NCDC staff of zoonotic diseases control department at central level.
- There are some training programs for veterinary cadres in the field of public health, but it needs to be expanded to include more staff at different administrative levels.
- It is planned to designate veterinarians from NCAH to be members in Rapid Response Teams of NCDC.

Areas which need strengthening and challenges

- Establish training programs for veterinary cadres in the field of public health covering all administrative levels.

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

Strengths/best practices

- Experience has shown the ability of centers and sectors to operate in an efficient and quick manner, to control any outbreak, but not guided by a clear known protocol to all stockholders.
- There is a memorandum of understanding between the NCDC and NCAH, which ensures effective response to zoonotic outbreaks, in addition to a sustainable sharing of information.

Areas which need strengthening and challenges

- Establish mechanisms for coordination, cooperation and communication among all stakeholders, including public and private sectors.

Food safety

Introduction

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

Target

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

Libya level of capabilities

The Food and Drug Control Center (FDCC) is responsible for food safety in Libya. FDCC was established under the law No. 629 in 2006 to guarantee the quality of food for human consumption and to check for food contaminants in imported and local food products through six control points (laboratories and internal control department), distributed among five central sea ports in five cities in Libya namely Benghazi, Khoms, Misrata, Tobruk, and Tripoli, in addition to Zuawarh which is land port.

Hazards can occur at any stage of the food supply chain (production, processing, distribution, preparation, storage and handling) and hence food inspection and control are essential to avoid the adverse health effects and economic consequences of foodborne illness, injury, and food spoilage. Foodborne diseases encompass a wide spectrum of illnesses and cause a growing public health problem worldwide which may result from the ingestion of foods contaminated with microorganisms or chemicals. Identification of causes and sources of contamination during any outbreak is critical for controlling the risk and prevent further cases.

The routine testing of imported foods in Libya is performed in the above-mentioned control points according to identified certification and quality control schemes whereas qualified teams dedicated to check the imported food and to take samples according to identified guidelines but still FDCC needs additional trained highly qualified staff to perform its mandate effectively.

Most of imported food enters through sea ports, and to assure that imported food is valid for consumption, FDCC work starts before importation. Importers have to request an importation approval from FDCC, and thus a technical team inspect the facility specified by the requested to store imported food and issue the license. After importation, at the point of entry, inspectors check the containers to ensure that handling and transportation has adhered to health instructions. Samples are taken and coded by the nominated officers according to set guidelines and transported in specific containers to previously mentioned laboratories to undergo chemical (heavy metals, mycotoxins, food preservatives, and additives) and microbiological examination. However, there still lacks a capacity for detection of pesticides and antibiotic residues. In addition, some food or food products cannot withstand at the port until sampling results are made available, so temporary approval is given, and food is transported under supervision until a licence is given or rejected. In case of rejection, seizure and destruction of foods is carried out by a specified team.

Routine surveillance activities are carried out at different points along food supply chain including food production facilities, markets and restaurants to verify both imported and locally produced food. Recently, outbreaks of E. coli and Salmonellosis were detected and reported whereas 50-70 persons were affected. Multi sectoral response activities are carried out during outbreaks and post outbreak assessment is submitted to IHR multi-sectoral committee by the FDCC member to discuss with other members opportunities to implement appropriate risk management strategies if required.

Land ports need to be strengthened to prevent illegal transportation of food/food products. Sanitation and health instructions laws need to be developed and applied towards food providers and food production/marketing facilities.

Recommendations for priority actions

- Develop memorandum of understanding among relevant sectors highlighting roles and responsibilities for each sector in surveillance, investigation and response to food borne diseases and food contaminants.
- Enhance laboratory capacity on advanced diagnostics techniques related to food safety such as residual analysis including training of personnel to enhance early detection of food related hazards.
- Develop database for risk profile on food related hazards to enhance risk assessment and rapid identification of response interventions.

Indicators and scores

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

Strengths/best practices

- There is an effective program for testing of imported and exported products to ensure its safety for human consumption.
- Good laboratory capacity to test microbial hazards, heavy metals and food additives.

Areas which need strengthening and challenges

- Coordination between FDCC and relevant stakeholders not documented.
- Illegal food importation (smuggling).
- Lack of sanitations roles that control food service providers.

Biosafety and biosecurity

Introduction

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

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

Target

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

Libya level of capabilities

The Libyan National Committee for Biosafety and Bioethics has been very active since 2012. Throughout these years, the Committee participated in over 30 events held in various cities of the world, addressing a range of important topics relating to biosafety, biosecurity and bioethics. These include training workshops on biorisk management, meetings and training of Africa focal points, identification of DNA for the mission in action, biowaste management, GMO in food, laboratory testing and handling of biohazards and other hot topics. Upcoming events are in the pipeline for the rest of 2018.

The critical aspects of biosafety, biosecurity, and biocontainment have been in the spotlight in recent years. There have also been increased international efforts to improve awareness of modern practices and concerns regarding biosafety and biosecurity.

Given the political unrest, ongoing armed conflict, and destruction of the health infrastructure, Libya is prone to public health emergencies such as outbreaks and biosecurity threats. The Libyan national Committee for Biosafety and Bioethics (LNCBB) has representation from all relevant stakeholders. The LNCBB, in collaboration with relevant national and international agencies, has drafted national legislations for biosafety and biosecurity and biosafety guidelines. Biosafety and biosecurity training programs have been implemented recently with the assistance of WHO, OIE, Georgetown University and Sandia National Laboratories. A Biorisk Management (BRM) course at university level has been adopted as part of curricula. Bio-waste management draft legislation has been drafted by LNCBB and is currently under revision. Establishing an inventory of biohazardous materials and establishing regulations on their handling is a much-needed step. Involving the private sector is also important in having an encompassing approach.

The directorate of private sector at the Ministry of Health is responsible for laboratory licensing administratively only but not based on specifications issues, the inspection for private and public laboratories usually conducted by local municipality.

Recommendations for priority actions

- Map country facilities and levels of laboratories.
- Document and conduct inventory of biological agents and consolidate the agents and toxins in few facilities.
- Create BRM task force in the country facilities (public and private).
- Conduct awareness campaign and obtain decision makers commitment to BRM activities and plans.
- Approve the national biosafety and biosecurity legislations and Institutionalize these laws.

Indicators and scores

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

Strengths/best practices

- The country already has an established LNCBB, the body overseeing BRM activities in the country and the arm that coordinate intersectoral Biosafety and biosecurity activities.
- Staff are trained in the transport of infectious substances according to IATA regulations.
- Personnel protective equipment are available.
- Trained personnel on biosafety biosecurity best practices thorough international stakeholders.

Areas which need strengthening and challenges

- National biosafety, biosecurity legislations should be approved and enforced at national and subnational levels.
- Laboratory mapping levels and their role in health laboratory system.
- A national inventory of pathogens does not exist.
- Laboratory licensing system.
- Inspection process for private and public laboratories.
- A BRM workforce should be nominated in laboratories at different levels.

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

Strengths/best practices

- Trained personnel on biosafety, biosecurity and shipment of infectious substances.
- Efficient and well-established communication with biosafety, biosecurity international partners.

Areas which need strengthening and challenges

- Develop action plan on training for BRM.
- Develop TOT Programme at national level and use the team for training at subnational levels.
- Map training needs and document implemented training.
- Enhance knowledge and skills on BRM at academic institutions.
- Seek certification for laboratory professionals on BRM.

Immunization

Introduction

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

Target

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

Libya level of capabilities

The national immunization programme of Libya has developed capacities despite the challenges and difficulties that the country is undergoing, evidenced by the high official reported coverage vaccination rates as well as by the numbers of facilities offering the immunization services. Libya had been declared polio-free since 1991, and no cases of tetanus were reported since 1993.

The national compulsory vaccination programme started in Libya in 1972; the following vaccines are currently included in the programme: Bacille Calmette-Guérin, diphtheria, tetanus toxoid with acellular pertussis, Hib, hepatitis B, IPV, Human Papillomavirus, Influenza, Meningococcal ACWY-135 conjugate, Measles, Mumps, Rubella, Oral polio, Pneumococcal conjugate and Rotavirus. The zero-dose vaccinations (BCG, Oral polio and hepatitis B) are provided at birth in the hospitals while the remaining vaccines in the schedule are provided through Primary Health Care (PHC) facilities.

The national reported coverage vaccination rates within the last five years were mainly above 95% based on official and administrative data sources; however, there was no nationally representative household survey within the last five years to confirm reported levels of coverage. Reports, such as the Pan Arab Project Family Health (PAP FAM) survey in 2014 and post campaign monitoring national immunization days report in 2017, indicate that the coverage rate for measles in children <5 lies around 70-85%.

As a large country in terms of land space, Libya faces the extra challenge of geographic coverage in implementing its national immunization programme, which is mainly facility based with limited outreach services for vaccination.

The internal population movements across different regions in the country, coupled with illegal immigrant movement (estimated to be 1 million immigrants), comprise great challenges to maintain satisfactory vaccine access and delivery and might increase the possibility of outbreaks of vaccine preventable diseases such as measles. Concerns related to storage of certain vaccines due to irregular electricity and power sources have also been reported

The lengthy procurement process for the vaccines is causing delay in the reimbursement process of the vaccine stock and might cause relatively low stocks in some districts, stressing the national need to have an efficient tracking and monitoring management system to the vaccine stocks and distribution at different levels and geographical areas in Libya.

Finally, the low availability of immunization guidelines at facilities and the shortage of trained staff on immunization delivery are contributing factors hindering the overall readiness of the PHC facilities for immunization.

Recommendations for priority actions

- Improve immunization coverage by supporting the outreach and supplementary immunization services to remote areas and communities including migrants and IDPs.
- Conduct regular nationally representative household surveys to confirm reported levels of coverage.
- Capacity building and staff training on immunization delivery and Vaccine management.
- Supporting cold chain management especially at the district and peripheral levels.
- Maintain regular and timely procurement of vaccines on comprehensive Multi Year Plan (cMYP).

Indicators and scores

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

Strengths/best practices

- The availability of immunization services is good across the country, as reflected by the numbers of facilities offering services.
- Vaccines are free of charge to Libyans and non-Libyan populations.
- The immunization programme covers a wide range of antigens, combination of underutilized vaccines, such as Haemophilus influenzae type b vaccine, pneumococcal conjugate vaccine, and rotavirus vaccine.
- Most vaccines are administered using prefilled syringes.
- Well-trained Expanded Program on Immunization (EPI) supervisors covering all country regions.
- Immunization card is required for primary school registration.

Areas which need strengthening and challenges

- Mass uncontrolled population movement across borders with huge influx of migrants mainly from sub-Saharan African countries
- Limited outreach immunization services especially in remote areas, IDPs and migrant communities.
- The need for nationally representative household survey to confirm reported levels of coverage.
- Strengthening the monitoring & tracking system of vaccine stocks & distributions.
- Last population census was conducted 2006 causing difficulties in estimating the real denominator for the target population.
- Increased number of reported measles cases/outbreaks over the past few years.

P.7.2 National vaccine access and delivery – Score 3

Strengths/best practices

- All districts in Libya have at least five facilities offering immunization services.
- Almost all facilities offering the immunization services have the needed equipment and refrigerators needed to maintain the cold chain.

Areas which need strengthening and challenges

- Recurrent delay in vaccines procurement process.
- Relatively low stocks in most of provided vaccines and the frequent stock outs for specific vaccines such as Measles and Hexavalent at some facilities.
- Monitoring of the cold chain is not consistently done, especially at the district and peripheral levels.
- The low availability of guidelines for immunization at PHC.
- Inadequate vaccine coverage of migrants (hard to reach).

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.

Libya level of capabilities

A network of national laboratories exists, constituting the national laboratory system. There are guidelines on the collection and transport of infectious materials, a laboratory manual, as well as guidelines on biorisk management.

The national laboratory system in Libya includes public health, animal health, food safety, and environmental laboratories. The structure of the national laboratory system includes the local Level of primary health care facilities, the intermediate level of hospital laboratories and the national level represented by the public health laboratories of Tripoli, Benghazi and Sabha.

National laboratories are equipped to conduct rapid and conventional detection, characterization, confirmatory testing, data reporting, investigative support, and laboratory networking to address actual or potential exposure to public health hazards. The capacity of public health laboratories supports routine surveillance, including pre-event or pre-incident and post-exposure activities.

From among the ten core tests, laboratories in Libya are capable of carrying out PCR tests for Influenza virus, serology of HIV, microscopy for TB, rapid diagnostic testing for plasmodium spp, bacterial culture for Salmonella enteritidis serotype Typhi, HCV serology and genotype, Brucella, Measles, Dengue, and MERS-CoV.

Libya has three reference laboratories for disease control allocated in Tripoli, Benghazi, and Sabha; in addition to Measles and Rubella Reference laboratory, the Meningitis Reference laboratory and the Pneumococcal Reference laboratory. Around 80% of the population has access to testing for the ten priority diseases.

Local clinicians have the custom of using the laboratory system. There are national guidelines for clinicians on which microbiological tests to be requested and carried out in specific syndromes. Feedback to clinicians is done using both manual and electronic systems.

National laboratory has the human resources and the technology to detect outbreaks or hazards of public health efficiently. Coordination well established during events of public health concern.

National laboratories established strong link with regional and international organizations in building capacities, training, external assessment programs.

With several areas related to IHR capabilities, there is a challenge in ensuring conformity of private sector facilities with the national guidelines for the safe handling, transportation, testing and reporting of hazardous infectious materials. Enforcing laboratory safety guidelines is a challenge for both public and private sector laboratories.

A national body that oversees Internal Quality Controls no longer exists. It used to exist in, but the destruction of the health system has exerted its negative impact in this area. There is however, an External Quality Assessment scheme for public health laboratories.

Due to the current situation and lack of resources, national laboratories have been affected by a shortage of priority disease reagents and consumables.

Recommendations for priority actions

- Develop a quality control task force to cover all country facilities.
- Set up a national committee for quality control.
- Establish the national laboratory quality policy.
- Develop national laboratory quality standards.
- Integrate and increase collaboration among human and animal laboratory systems for a One Health approach.

Indicators and scores

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

Strengths/best practices

- The laboratory system is in place and capable of detecting at least 5 of the 10 core tests identified by IHR.
- Well-equipped molecular, serology and bacteriology units at the national laboratories.
- Participation of EQAS program at national level.

Areas which need strengthening and challenges

- Sufficient resources should be assured to cover the priority diseases under IHR.
- A national system for quality assurance for laboratories should be implemented.
- There is shortage of reagents and supplies in the local market.
- Maintenance of key equipment, preventive maintenance should be sustained.

D.1.2 Specimen referral and transport system – Score 4

Strengths/best practices

- Trained personnel on packing, transporting of infectious substances.
- Instructions for specimen's transportation are available.

Areas which need strengthening and challenges

- Specimen referral system should cover all the country.
- Collection tools, kits resources should be sustained.
- Training of personnel.
- Specimen tracking at national and subnational levels, storage, disposal procedures should be developed.

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

Strengths/best practices

- Advanced molecular and serological techniques are available at central level.
- Well trained staff on different laboratory diagnostic techniques.

Areas which need strengthening and challenges

- Resources for reagents, kits, supplies should be sustained.

D.1.4 Laboratory quality system – Score 1

Strengths/best practices

- Participation in EQAS at national level.
- Availability of quality control instructions at national level.

Areas which need strengthening and challenges

- Laboratory licensing system for public and private should be updated to include Internal Quality Control instructions.
- Participation of other laboratories in EQAS.
- Develop national policy for laboratories.
- Establish, monitor, and sustain laboratory quality system.

Real-time surveillance

Introduction

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

Target

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

Libya level of capabilities

Libya has a list of notifiable diseases and notifications forms exist at national and subnational level.

The country has various public health surveillance systems which are managed by the National Center of Disease Control (NCDC).

Traditional indicator-based surveillance systems include a rather passive mandatory diseases surveillance with defined list of 45 notifiable diseases and syndromic surveillance (including Acute Flaccid Paralysis and food borne intoxication) using a standard form. Indicator based surveillance includes data such as the case number, prevalence, incidence, and maps. Data exists through the routine health facility reports.

The mechanism of notification is divided into immediate (for 12 epidemic prone diseases) and weekly (for the rest) basis reporting. The forms are sent from health facility to municipality surveillance officers, where data is collated and sent to NCDC.

At present, collection and reporting of surveillance data are in paper format. Electronic reporting systems are utilized in human health for EWARD only, and not yet in animal health. WHO, in collaboration with NCDC, started the establishment of EWARD in Libya in 2015. To date, 125 surveillance sites responsible for reporting on EWARD are functional. Surveillance officers were trained on surveillance-based case definitions of a list of priority diseases, alerts and outbreak thresholds. Data is entered electronically on tablets and submitted to the NCDC.

Basic (microbiology) laboratory capacity for confirmation of diagnosis exists nationwide, whereas more specific tests are available only at the central level, particularly in NCDC laboratory.

Event based surveillance exists at national and sub-national levels, down to the level of municipalities. SOPs for event-based surveillance do exist.

NCDC relies on the vigilance of surveillance officers who make an early notification of an unusual/rare case, or cluster of cases, by telephone or fax (instead of sending the form). However, this event-based surveillance system is not well functioning and does not use all sources of information (it's based only on notifiable diseases).

Public reporting includes publishing on the NCDC website, weekly and monthly electronic reports shared with WHO and made available through public domains.

Laboratory data for AFP, Measles, Rubella, TB, AIDs, Hepatitis and Influenza feeds into the surveillance system. The ongoing collection of real time laboratory data that is connected to MoH systems is limited, occurring only in the case of AFP, Measles and Rubella.

There is no mechanism by which MoH would share laboratory data with other ministries/agencies. This is a major shortcoming to a desired multi-sectoral approach for comprehensive surveillance.

A total of 125 sites participate in Syndromic surveillance system, and 36 sites in the Routine surveillance system. There is no specific program for validation of surveillance data.

Recommendations for priority actions

- Finalize development of electronic real-time reporting system of notifiable diseases including zoonotic disease.
- Complete establishment and functioning of event-based surveillance system.
- Expand the coverage of the indicator-based surveillance to include the private sector.
- Reinforce capacity for data analysis and reporting particularly at sub-national level.
- Conduct advocacy and awareness activities to improve reporting on notifiable disease.

Indicators and scores

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

Strengths/best practices

- Indicator based surveillance system is in place and functional with standardized reporting mechanisms.
- EWARN system is functional and surveillance officers were trained.
- Some EBS functions already exist.

Areas which need strengthening and challenges

- Better coordination between different departments/agencies within health system in disease surveillance and response requires a national strategy.
- EBS has not extended to other non-health sectors and non- health sources of information is necessary to achieve full potential of EBS.
- Under reporting (estimated to be 40%) and poor participation of the private sector limit capacity of IBS to timely detect public health threats, particularly with the current influx of migrants/refugees from sub-Saharan countries.

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

Strengths/best practices

- Electronic real time surveillance system utilized in human health for EWARN.
- There are plans to implement electronic reporting in all surveillance systems.

Areas which need strengthening and challenges

- Generalize real time surveillance system for all events

D.2.3 Analysis of surveillance data – Score 3

Strengths/best practices

- Weekly reports issued (AFP, Measles, EWARD) and sent to stockholders (WHO office, EMRO).
- Annual reports published on NCDC website.

Areas which need strengthening and challenges

- Regional/local level capacity to analyze and link data as well as conducting risk assessment is very limited.

D.2.4 Syndromic surveillance systems – Score 4

Strengths/best practices

- Syndromic surveillance systems in place to detect five core syndromes (AFP, measles, rubella, diarrhea and meningitis) indicative of public health emergencies.

Areas which need strengthening and challenges

- Develop systematic sharing system of syndromic surveillance data with relevant structures.
- Expertise to support other countries in developing surveillance systems.

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.

Libya level of capabilities

The IHR NFP is currently responsible for notifying WHO about major events which constitute PHEIC. A list of over 30 diseases reportable within a week and a shorter list of 12 diseases that require immediate reporting exist, and are widely shared among the various health facilities. After assessing an event as PHEIC based on the IHR 2005 determinants, the NFP reports to WHO within 24 hours.

The Focal Point for OIE is NCAH. OIE national focal point was trained on notification in France in August 2017. However, IHR NFP still has not received relevant training. Food safety issues resulting from microbiological causes are reported by NFP. IHR NFP bilateral exchange mechanisms with neighbouring countries as Tunisia & Egypt exist, but there are agreements which require reporting between neighbouring countries that still need to be activated.

The last events that tested the country's reporting system were human plague which occurred in Tubrok in 2009 and avian flu in chicken in the years 2013 and 2015 successively. Indicator based and event based surveillance systems enable the country to identify the events, using the conventional alert thresholds and outbreak thresholds (EWARN). Data is analyzed, and information is relayed to decision makers with the necessary recommendations.

There are no major obstacles which limit the performance of the IHR NFP. IHR NFP uses the information consultation mechanisms with WHO.

It can be derived that a system for the efficient reporting to WHO and OIE exists, and that the capacity in this area is developed. However, capacity building is needed for the IHR NFP.

The capacity in a reporting network and protocols is limited in Libya. It is important to invest in improving the existing guidelines, protocols and SOPs to render the above system functional and efficient. The protocols should address – among others - the procedures for the animal – human interface.

While the system has been tested in real time, by the Avian Influenza and Plague events as described above, conducting a Simulation Exercise can reveal further information and gaps to be improved, especially in the functionality of the reporting system.

Another area to be verified is how fast does reporting of PHEIC from rural to urban areas happen before they are reported to WHO. This area represents the inter-link between the national surveillance system and the national reporting system for IHR purposes. Improvement should be made in a holistic way to address this continuum. A Simulation Exercise should inform the identification of funding gaps and the necessary budgetary allocation should be devoted to this area as a priority.

Recommendations for priority actions

- To strengthen the system based on an exercise or real event for reporting to WHO, OIE and FAO within 24 hours, of a potential PHEIC or relevant zoonotic disease.
- To established protocols, processes, regulations, for multisectoral coordination in response to a potential PHEIC to WHO and to the OIE for relevant zoonotic disease.

Indicators and scores

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

Strengths/best practices

- Assessment exists for all major events which constitute PHEIC and reporting to WHO is done within 24 hours.

Areas which need strengthening and challenges

- Delay of reporting on events from sub national level causes delay in notifying WHO and / or OIE.

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

Strengths/best practices

- There are IHR NFP, OIE delegate and WAHIS NFP.

Areas which need strengthening and challenges

- Weak coordination between sectors.

Workforce development

Introduction

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

Target

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

Libya level of capabilities

The National Center for Health System Reform was established in March 2017 and the National Health strategy in September 2017. A strategic plan for public health workforce has been designed but not yet implemented. Among the guidelines and principles of the health system reform is a major cornerstone mandating the clear separation between health financing, public health governance and service delivery.

Regulation of health care services is aimed to be delivered through a network of regulatory bodies that provide a system for quality assurance including national standards of care, licencing of service providers, health workforce regulation, and other relevant areas.

The goal of the reform is to decentralize healthcare service governance to the lowest possible levels, working towards an "Integrated District Health System". It is envisaged that primary health care services will be managed at municipality level, while secondary and tertiary care at regional (province) level at the initial phase, with further decentralization to be evaluated and considered later.

With this proposed structure, building the capacity of the public health workforce becomes a crucial and urgent matter. Such an expansive and decentralized system can only function when there is sufficient and varied public health workforce capacity at the lowest possible level. The intended integrated district health system needs not only practitioners, but managers and administrators to be trained, positioned and stabilized in all the remote areas of the country.

Workforce development is a crosscutting area. Many other aspects of IHR implementation depend on having a strong public health workforce. The current situation falls short of that desired level, with marked structural and functional limitations. The matter of licencing and re-licencing has to be taken into consideration. Incentivizing staff to go to remote areas and using creative approaches is a lesson learnt from other countries and can be adopted by Libya.

The coordination among IHR relevant sectors in human resource development programmes is evidently lacking, leading to fragmented workforce structure and function in performing IHR core duties at the various levels.

The existing capacities in terms of clinicians, biostatisticians, information systems specialists, veterinarians, social scientists, laboratory technicians/specialists and other public health personnel are available at all levels to varied degrees – including in the private healthcare sector. However, there is marked limitation in the number of epidemiologists who are mainly found as academic faculty in universities, not as practicing field epidemiologists. Case management capacity exists at national, intermediate and local levels.

There is no FETP in Libya yet, and the capacity for field epidemiology is very limited. Linkages have been established with EMPHNET, and there is need to strengthen and provide regular funding to train personnel through both the short-term Public Health Empower (3 months) and FETP (2 years) programs.

Multi-disciplinary outbreak investigation and response teams are established in case of emergency, and communication happens among the team members.

Long-term training programs to help expand the pipeline of qualified public health professionals within the country are available for physicians in the areas of: case definition; case management; disease prevention; disease surveillance; and outbreak investigation. Training also exists for veterinarians in the areas of: case definitions; case management; disease prevention; disease surveillance; outbreak investigations; and geographic information systems (GIS). No specific training is conducted for nurses, and no data exists on training for biostatisticians. Training is provided to laboratory assistants and specialists on: biorisk management; infectious sample shipping; molecular diagnostics; and quality management system. No targeted, IHR-related training is provided to farmers and livestock professionals.

The median number of years public health personnel stay as staff within the ministry and/or national institutes is around 35 years. With this, departures, aging or retirement of employees are the main causes of workforce attrition.

MOH retention policy towards health professionals involves limited incentives, mainly for physicians and in the past, training and refresher training.

Rural-urban migration of workforce, seeking better lives is impacting the public health system in Libya. This is compounded by the aftermath of the conflict and resulting challenges around the country.

The main source of funding for IHR related human resource capacity are the government salaries.

Recommendations for priority actions

- Establish link with Field Epidemiology Training Program (FETP) in neighboring countries.
- Establish FETP in Libya.
- Establish public health empowering/basic field epidemiology program.
- Review and update public health workforce strategy.
- Capacity building of all administrative and managerial personnel within key Ministries in IHR-related public health matters.

Indicators and scores

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

Strengths/best practices

- Human resources' capacity exists but mostly in human and animal health.
- Rapid response teams' interventions are carried out when needed.
- IE value chain exists (NCAH).

Areas which need strengthening and challenges

- Need for further training of workforce.
- Funding gaps.
- Address the knowledge gaps among multi-sectoral administrative and managerial cadres to strengthen advocacy and speed-up actions for IHR-capacity development.
- Establish medium-term plan to bridge the workforce gap by training personnel through Public Health Empowering (3-months) program and deploying the trained personnel to remote areas.
- Address the rural-urban migration through the development and implementation of stabilization packages for health workforce to ensure continued coverage of remote areas.

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

Strengths/best practices

- Links have been established with EMPHNET.
- Communications ongoing to train staff from Libya under the Field Epidemiology Training Program.

Areas which need strengthening and challenges

- Develop timeline and action plan for the establishment of FETP (2-year program) in Libya.
- Develop concrete targets and outcomes for the training of personnel with EMPHNET.

D.4.3 Workforce strategy – Score 2

Strengths/best practices

- Strategy exists but concerns only Ministry of Health staff and needs updating.

Areas which need strengthening and challenges

- Update strategy and ensure it adopts a multi-sectoral approach to workforce development in relation to IHR.

RESPOND

Preparedness

Introduction

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

Target

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

Libya level of capabilities

Libya has no multi-hazard national public health emergency preparedness and response plan that adopts a whole of society approach and addresses risks at the Points of Entry (PoE). There is no specific organization or institute responsible for public health emergency per se.

Specific plans are created temporarily in response to specific emergencies, such as avian flu in 2016 and a national emergency plan for prospective polio epidemic. Other existing plans and procedures include the National Polio Outbreak Preparedness and Response Plan; Surveillance standard operating procedures for communicable disease surveillance and response; and Health emergency management strategic action plan (SAP).

The points of entry have regulations and SOPs guiding the establishment of measures and for public health emergencies involving PoE.

Surge capacity available to respond to public health emergencies of national and international concern does not exist. Human resources are available to respond to public health emergency, but tools or materials are insufficient.

The relocation or mobilization of resources from national and intermediate levels to support response at local level happens on an ad hoc basis. A specific budget for emergencies is not available, but it is possible to approve a budget for any emergency on a need-basis, such as in the case of avian flu in 2016.

The lack of financial resources could affect creating and establishing national public health emergency plan. The civil unrest could prevent the decision making for taking the plan into consideration.

Trainings and workshops are very important to create a road map for creating the plan which could be affected by the insecure situation.

Regarding public health risk and resource mapping, most sectors associated to public health risk specify that there are neither public health risks described nor resource mapping. A national public health risk and hazard mapping exercise has not been conducted.

There is no full information about experts in the field of emergency, but the country has specialists in some fields of emergencies such as: prevention and control at National Center for Disease Control; prevention and control at National Center of Animal Health; environmental sanitation and pollution at Health Libya Environment General Authority and; standard specifications specialists at Food and Drug Control Center.

No permanent funds are allocated to preparedness measures. The ad hoc procedures described above are crippled by the lack of national or external funding.

Recommendations for priority actions

- Specific organization or institute responsible for public health emergency should be established.
- Legislation and national guideline for any public health emergency.
- Review existing emergency preparedness and response plans to all hazards and ensure the inclusion of public health component.
- Budget for public health emergencies should be allocated, not for specific emergency such avian flu, but for any emergency related to public health.
- Finalize mapping of public health risks and resources.

Indicators and scores

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

Strengths/best practices

- National Action Plan for Polio Preparedness and Response exists.
- The points of entry have regulations to implement procedures for any emergency – e.g. Avian Influenza.

Areas which need strengthening and challenges

- Financial resources could affect the creation of a national public health emergency plan.
- The civil unrest could prevent the decision making from taking the plan into consideration.
- Trainings and workshops are very important to create a road map for creating the plan which could be affected by insecurity.

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

Strengths/best practices

- Resources are mobilized to support response to emergencies at sub-national level.
- Libya has specialists in some field of emergencies such as:
 - a) Prevention and control at National Centre for Disease Control (NCDC)
 - b) Prevention and control at National Centre of Animal Health (NCAH)
 - c) Environmental sanitation and pollution at Health Libya Environment General Authority (EGA)
 - d) Standard specifications specialists at Food and Drug Control Centre (FDCC)

Areas which need strengthening and challenges

- Limited training of personnel in the field of emergency preparedness and response.
- No existing surge capacity or arrangements.
- No data related to availability of resources.
- No mechanism to address the resource gaps.
- There is no database of existing emergency experts, and limited information and training to support them.

Emergency response operations

Introduction

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

Target

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

Libya level of capabilities

The capacity of the health system for emergency management and coordination in Libya is evidently inadequate. There is neither a policy framework nor an emergency response plan. The Emergency Operations Center has been established but is non-functional.

MoH has established a crisis committee and launched a shock room, but they manage health emergencies with limited effectiveness because of lack of an endorsed plan and improper communication facilities. During an emergency, data collection is carried out but without standard procedures.

There is no multisectoral commission combining security, public health, veterinary, wildlife, and other experts, nor a multidisciplinary emergency response department for public human/animal health. Coordination and communication among the various sectors does not follow a specific mechanism. There is just cooperation between NCDC and NCAH in case of an outbreak of zoonotic diseases or correlated disease. Wildlife and environmental diseases are not included in the coordination.

The system for coordination is mostly based on need and demand, with no instituted SOPs and no pre-defined contingency plan or tested case scenarios.

During an emergency, scientific data and recommendations are shared with policy makers and national leaders but that does not follow any SOPs as they do not exist.

Emergency response is mostly a shared responsibility between public health and civil defence. Communication with surveillance department and early warning system for notifiable diseases are the first point of contact for the public and for clinicians to call for help on handling a disease of unknown origin. A comparable system for animal disease support exists.

Since the EOC is yet to be activated, its capacity for coordinating response has not been tested yet. Emergency Operations training for EOC staff has not been carried out, nor do manuals and training materials exist.

There is no training available to surge staff in advance of a response. “Just in time” training is not available either. An incident management system is yet to be established as well.

Case management guidelines for priority diseases and IHR relevant hazards including nuclear, chemical, zoonotic and food safety related diseases exist at all health system levels. There are SOPs (accordingly to national or international guidelines) for the management and transport of potentially infectious patients in the local level and at points of entry. Patient-referral and transportation is carried out using the national ambulance services with adequate resources (designated ambulances and SOPs).

In summary, the challenges can be defined as lack of clear national strategic plan for crises management; lack of resources; lack of well trained staff team; and lack of proper coordination among involved sectors.

Recommendations for priority actions

- Development of PHEIC standard operating procedures for response during emergencies.
- Establishment of EOC management structure to identify the basic roles including Incident management or command, Operations, Planning, Logistics and Finance.
- Review the case management guidelines for other IHR relevant hazards (nuclear, chemical, zoonotic and food safety), to strengthening coordination during emergency.

Indicators and scores

R.2.1 Capacity to activate emergency operations – Score 2

Strengths/best practices

- Shock room: provide coordination between involved health sectors.
- Ambulance services: provide limited transportation and referral services by vehicle and aircraft.
- Civil defense capabilities.

Areas which need strengthening and challenges

- Standard procedures and guidelines on activating emergency response.
- Multi-sectoral coordination.

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

Strengths/best practices

- There is recognition of the gap and readiness to implement EOC.

Areas which need strengthening and challenges

- Emergency response guidelines and SOPs.
- All-hazards contingency plans.
- Emergency response action plan.

R.2.3 Emergency operations programme – Score 1

Strengths/best practices

- Systems are deficient but ad hoc response can be activated.

Areas which need strengthening and challenges

- Building the entire emergency response program.
- Training staff.
- Advocacy among senior officials from the various sectors involved.

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

Strengths/best practices

- Case management guidelines are available for priority epidemic-prone diseases (EWARN).

Areas which need strengthening and challenges

- Revise the list of diseases and ensure guidelines for all.

Linking public health and security authorities

Introduction

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

Target

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

Libya level of capabilities

There is no memorandum of understanding or other agreement between public health and security authority entities at the national level. Despite the lack of MoU or official agreement, the public health and security authorities are linked during emergencies in general, such as evidenced during the 2009 Influenza pandemic. Communications is also established during public health events and coordination exists between both public health and security authorities at points of entry. Joint training, including both public health and security authorities, on topics related to information sharing and joint investigations/responses has not been conducted and is not planned.

While there is understanding of the need to act jointly and in coordination, response is often delayed because of the lack of pre-defined procedures, incident command system and well defined responsible functions/ personnel.

There are no SOPs or agreements in place for a joint/shared risk assessment during events of public health and security significance, but the practice is always in favor of a coordinated investigation and response. Information is shared regularly during emergencies related to public health and security significance.

Coordination exists at the national level but is very difficult to establish at the sub-national level, especially in remote parts of the country. Insecurity also complicates the situation. The flow of information is very weak and often seriously delayed.

There is a connection with InterPol, which is utilized when needed. There is no control over the private sector.

Action is triggered by the Silver Government (level 2). This may cause delays in the response actions.

Health Law 106 for year 1973 and the Decree of NCDC allow the government to detain/quarantine an individual who presents a public health risk. There is no mechanism to report potential biological events or other public health events that may have deliberate motives identified in the country.

Public health experts have the capacity to be involved in emergency response linked to the Biological and Toxins Weapons Convention (BTWC) although no such incidence has been reported.

Informational reports are not regularly shared between public health and security authorities within the country as there is there no mechanism in place to encourage regular reporting. However, this can be encouraged by signing a memorandum of understanding and possibly sharing the weekly EWARN report.

At present, reports received from international organisation and reports from both public health and animal health are shared with security authorities. During emergencies, security authorities regularly share reports with public health.

There is lack of a country-specific joint investigations curriculum in place to train public health and law enforcement entities on joint investigations.

No real-time testing exercise, simulation, or response that involves leadership from both public health and security authorities has been carried out within the past year.

Recommendations for priority actions

- Establish Memorandum of Understanding (MOU) or agreements between public health and security authorities.
- Conduct public health emergency response exercise.
- Develop a regular reporting system and strengthen communication between public health and security authorities.

Indicators and scores

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

Strengths/best practices

- Human resource can implement emergency national disease rapid response under very difficult situations.
- Notification reports are sent (including internationally).
- Stakeholders have a record of quick response with any biological event.

Areas which need strengthening and challenges

- Lack of communication and corporation between the sectors.
- Country legislation as whole.
- Establishing cooperation agreements between public health and security authority.
- No national plan strategies.

Medical countermeasures and personnel deployment

Introduction

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

Target

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

Libya level of capabilities

The Health law 106 from 1973 and its bylaw from 1975 are outdated and without evidence of full implementation. Several attempts to issue a special law to regulate pharmacy and medicinal products were failed.

The country has a plan in place that identifies procedures and decision making related to sending and receiving medical countermeasures during a public health emergency. The plan addresses regulatory concerns of receiving drugs or devices from international sources and addresses logistic concerns related to sending, receiving and distributing medical countermeasures during a public health emergency. It has a component addressing the security concerns that may emerge related to sending/receiving/distributing medical countermeasures during a shortage.

National Medicines policy adopted in 2003 and revised in 2013, along with plan of action including crises management, are not implemented and not adopted. Drug Regulatory Authority (DRA) have no information about IHR.

There are written guidelines for crises management related to medical products, but they need to be revised and adopted.

Previously stockpiles for at least 6 months were applied, but this is no longer the case. During the last three decades, Libya was sending medical supplies & personnel to many countries. During the past year, the country has tested its capacity to receive medical supplies from WHO (HIV, TB, Leshmenia and Malaria drugs), IOM (drugs for detention centres program), and UNICEF (HIV drugs).

There is no local production of antibiotics, vaccines, laboratory supplies or equipment and no agreements with manufacturers or distributors to procure medical countermeasures during emergencies. The public health authorities apply tenders & D.O. Libya used to be part of the Maghreb, which enabled the country to have access to a regional countermeasure procurement agreement. At present, discussions and a procedure are under completion with WHO. No international or regional procurement agreements, but previously Libya was a member of CMAC. There are resources and staff dedicated and identified for delivery, receipt tracking and distribution of countermeasures. There is a law regulating animal procuring and distribution countermeasures, and a plan for emergency management, but the latter is not properly prepared, such as set up of crises committees, emergency procurement committees.

Libya had sent and received many health personnel during public health emergencies (illegal immigrants), but there was no written plan for regulation, training, and safety of health personnel during an international

deployment. These actions were managed through ministerial decrees and cooperation and collaboration with organization such as WHO, UNFPA, IOM, UNICEF, Doctors without Border & Red Crescent.

The national guideline for pandemic Influenza (2005) addresses medical countermeasures. There is a law regulating animal procuring and distribution.

Libya uses the set of international measures which identify procedures and decision-making related to sending and receiving health personnel during a public health emergency. These include regulations by WHO, UNFPA, UNICEF, IOM, Doctors without Borders and the Red Cross.

The draft plan identifies training to be provided, and human resource capacity needs.

There are no policies and resources in place to ensure that technical institutions and networks can be active partners in the Global Outbreak Alert and Response Network (GOARN).

Recommendations for priority actions

- Develop a national medical countermeasure plan.
- Prepare a model list of medical countermeasures required during public health emergencies, including selection, quantification and time schedule.
- Set up comprehensive SOPs for logistics of medical supply chain concerning medical countermeasures during public health emergencies.

Indicators and scores

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

Strengths/best practices

- Availability of guidelines (medical supply management in crises situation and donations guidelines.)
- Cooperation and collaboration nationally, regionally and globally. Especially with WHO, IOM Doctors without Border, Red Crescent, UNFPA, and UNICEF.
- Availability of organizations such as MoH, NCDC & Medical Supply Organization (MSO).

Areas which need strengthening and challenges

- DRA has no information about IHR.
- Delays for adoption and implementation of drafted legislations Policies & Plan of actions.
- No political will.
- Political instability.
- No cooperation and collaboration nationally and globally.
- No personnel training programs and lack of budget.

R.4.2 System is in place for sending and receiving health personnel during a public health emergency – Score 2

Strengths/best practices

- Enough Number of personnel in all HCF.

Areas which need strengthening and challenges

- Establish a mechanism for deployment of personnel.
- Train personnel – pre-deployment training – on various potential hazard scenarios.
- Lack of budget.

Risk communication

Introduction

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

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

Target

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

Libya level of capabilities

The public health system in Libya has deteriorated due mainly to political and governance instability, scarcity of resources, and exodus of health expertise. The ongoing state of emergency has given little room for recovery of health services including health communication capacities.

The leading role of timely and appropriately communicating in case of public health threats is not well defined between the different key players. There is little coordination at the national or regional level for a comprehensive approach to communicating and mobilizing support to overcome threats and hazards affecting the health of the population.

Communication activities evolve mainly around press releases to clarify rumors or misconceptions, media awareness campaigns to support health programs like immunization, MCH, GBV and drug abuse, occasional participation in local radio/TV programs, sporadic communication trainings for health/media professionals, basic development of IEC material and ad hoc documentation of field visits. More sophisticated development and production of communication products is usually outsourced by UN agencies and INGOs.

The most influential media in the Libyan society are television, radio and social networks. Libyan radio stations are very popular because of their focus on local content. Social media platforms, particularly Facebook, Twitter and YouTube are extensively used by the community at large with heavy reliance on electronic information and social networks (WhatsApp, SMS) especially among young people.

Health related communication between government agencies is currently carried out on an ad hoc basis. In the absence of a national risk communication system in place, the few infectious disease outbreaks in the country revealed major challenges in internal and external channels and flow of communication. There is inadequate coordination of communication with internal and external partners and poor synchronization between government communication and information received from partners. There is ad-hoc cooperation between the media sector on matters of health, and no well-defined information packages are disseminated in case of emergencies.

However, communication abilities have good opportunity for improving due to the availability of capacities in different ministries and agencies at national and district level, the support of the international community through presence of UN agencies and international NGOs and the active NGO sector as demonstrated in the successful implementation of the polio outbreak preparedness plan and the measles and HAV outbreak responses.

Recommendations for priority actions

- Create and formalize a national multi-sectorial task force that brings together all risk communication stakeholders (decision makers and technical) and develop terms of references to operationalize this coordination platform.
- Develop a national risk communication strategy and plan of action including SOPs.
- Enhance community engagement building on the existing structure and network (polio and measles) and expand to cover all health hazards.
- Build risk communication capacity by identifying, training and providing technical support to entities working in health promotion, media relation and digital communication including spokespersons at national and district level.
- Establish a mechanism for dynamic listening, tracking and managing rumors and misinformation in synchronization with all concerned parties to ensure message consistency.

Indicators and scores

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

Strengths/best practices

- The 2018 WHO country cooperation strategy Libya prioritizes the upgrading of the national health promotion and education programs offering an ideal platform to support the development of risk communication.
- The availability of an NCDC national risk communication strategic framework and an NCAH draft communication plan for promotion.
- Most Libyan ministries and governmental agencies have a public relation and/or communication office although lacking resources for optimal functioning. NCDC and NCAH along with the UN agencies and INGOs present in Libya have also specialized resources that can be harnessed to support risk communication institutionalization.
- Communication plans and SOPs exist for major programs such as EPI/Polio, RH, GBV, MCH. These can be used as a baseline for developing a risk communication strategy and plan of action encompassing all hazards.

Areas which need strengthening and challenges

- The unstable political and security situation does not offer an enabling environment for the prioritization and development of national communication strategy. There is a need to develop a strategy and SOPs that can be implemented in the different parts of the country.
- All concerned authorities need to support and prioritize risk communication on the national agenda, identifying and bringing all communication key players under one roof to endorse appropriate institutionalization and funding.
- Communication efforts need to become more formalized and streamlined to improve organizational collaboration and coordination during emergencies.
- The critical situation has caused the migration of qualified talent affecting the availability of communication resources in Libya. Training of existing resources is critical with recruitment and mobilization of additional manpower

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

Strengths/best practices

- There is a formal agreement between NCDC and the NCAH regarding technical cooperation and joint efforts in capacity building, program development and research. The resources and technical support provided by NCDC and NCAH during past disease outbreaks presents a valuable platform to build on for future planning and capacity building.
- Communication with hospitals and with the private sectors are coordinated to a certain extent respectively by the emergency response directorate and by the private sector directorate at MOH.
- The active networks of UN agencies and INGOs supporting the humanitarian efforts have led to the creation of different committees and task forces to coordinate program planning and implementation including communication. There was also successful partnering with universities and civil organizations for health promotion and communication initiatives.
- Ad-hoc communication coordination such as meetings and/or irregular information sharing takes place among partners, especially when requested to report on disease outbreaks when requesting support (Polio/malaria).
- Successful Implementation of polio and measles outbreaks response guidelines offered a good opportunity to reflect the benefits of communication coordination among partner organizations.

Areas which need strengthening and challenges

- The absence of formal mechanisms for communication and coordination is leading to duplication of efforts and lack of optimization of use of scarce resources.
- The absence of formal clearance process for release of public information has caused many incidents of inconsistencies and contradictory news releases to the media. This issue needs to be addressed urgently.
- Coordination should include all relevant parties irrespective of political affiliation or geographical location to ensure success of communication objectives.
- Once institutionalized, SOPs for communication and coordination need to be piloted and monitored regularly to address challenges timely.

R.5.3 Public communication – Score 1

Strengths/best practices

- The successful implementation of communication initiatives within the polio outbreak preparedness plan along with polio outbreak simulation exercises.

- Some assessment and situation analysis have been conducted by international agencies to identify priority areas for intervention and could be used as baseline indicators for communication planning in the absence of national baseline research to explore risk perceptions associated with pandemics.
- Schools, universities and scientific societies can also play a major role in supporting public communication initiatives. Civil society organizations play an active role in their community and contribute to several public health initiatives across the different parts of the country.
- Social media is widely used and accessible, and media platforms reach population even in the most remote districts through local radio and SMS text messages.

Areas which need strengthening and challenges

- There is no basic understanding of crisis and emergency risk communication, but rather a confusion with health communication in general.
- No SOP or agreement regulates joint public communication or clearance of messaging to ensure consistency.
- Media collaboration plans should be developed further to regulate and optimize the use of available opportunities.
- Information Education Communication (IEC) material is produced without pretesting or validation of content.
- Online communication should be enhanced to make better use of social media and new technology.

R.5.4 Communication engagement with affected communities – Score 1

Strengths/best practices

- Successful implementation of the polio outbreak preparedness plan and the measles and HAV outbreak responses.
- Availability of national workforce capacities in different ministries and agencies at national and district level that could be trained to conduct outreach and assessment exercises.

Areas which need strengthening and challenges

- Conduct an audience analysis to look into knowledge, attitudes, and practices (KAP) towards risk perception, trusted information resources and preferred communication channels.
- Conduct an assessment of existing research of community understanding, including demographics, literacy levels, dialect spoken as well as socio-economic and cultural backgrounds

R.5.5 Dynamic listening and rumour management – Score 2

Strengths/best practices

- EPI supervisors are trained prior to NID to be able to track rumors or misinformation than can disrupt the campaigns.
- WHO Libya has established a network of 10 national focal points to provide health emergencies information that can identify urgent gaps and support countrywide health needs assessment.

Areas which need strengthening and challenges

- Ad hoc systems for listening and rumor management through health care workers but results are not properly 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 to designate and maintain core capacities at international airports and ports (and where justified for public health reasons, a State Party may designate ground crossings), which implement specific public health measures required to manage a variety of public health risks.

Libya level of capabilities

Libya shares a border with six countries: Tunisia and Algeria to the west, Nigeria and Chad to the south, Egypt and Sudan to the east.

There are 24 points of entry in Libya: 8 airports, 8 seaports and 8 ground crossings. Twelve of them are out of service.

All points of entry are under the authority of the NCDC (National Center of Disease Control) which is the IHR-NFP. Health control officers are able to reach out IHR-NFP as needed.

None of these are designated points of entry; inspection programs ensuring a safe environment for travelers including potable water control, food safety, vector control and solid and liquid waste management are absent.

None of the eight seaports is declared “authorized” in accordance with the IHR article 20 to issue the Ship Sanitation Certificates. Only in seaports, are borders health control units part of the facilitation committees.

There is no joint designation of adjacent ground crossings, with neighbor countries, for the capacities in annex I, as it is stipulated in the IHR article 21.

There is a lack of coordination between all stakeholders in the point of entry.

Recommendations for priority actions

- Designate PoEs for implementation of IHR.
- Identify competent authority for each and establish a mechanism for coordination and communication between the relevant stakeholders. EOC/crises management center at PoE can be used as an entity for coordination.

- Train personnel on public health management at point of entry and develop the necessary SOPs.
- Develop all hazards public health emergency preparedness and response plan and the necessary SOPs.
- Review the animal quarantine system and establish a mechanism to enhance it including quarantine facilities.
- Ensure the integration of points of entry and facilities around it, in the national vector control management program.

Indicators and scores

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

Strengths/best practices

- Some points of entry have emergency medical services including diagnostic facilities, staff, and equipment.

Areas which need strengthening and challenges

- The activities aiming at, through inspection programs, ensuring a safe environment for travellers including potable water control, food safety, vector control and solid and liquid waste management are absent
- Absence of any procedure regarding activities of health control officers.
- Health control officers are not trained for the inspection of conveyances available at PoE.

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

Strengths/best practices

- An animal quarantine mechanism exists, but the animals are quarantined on farms in the area and not at the point of entry.

Areas which need strengthening and challenges

- Public health emergency contingency plan needs to be developed and validated both by the public health authority and by all the relevant stakeholders.
- Public health emergency contingency plan should be incorporated within the airport/port emergency plan.
- The emergency contingency plan should be tested.
- Have an appropriate structure for isolating suspected patient in PoE.
- Review the mechanism of animal quarantine.
- Absence of any procedure to monitor, in consultation with customs, baggage, cargo, containers, conveyances, goods, and postal parcels as per the IHR article 22 and to apply public health measures in case of public health emergency of international concern (IHR annex 1).

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.

Libya Level of Capabilities

Production of petroleum and related products is one of the main sources of income in Libya. Capacity to respond to chemical events related to this industry used to be good before the current crises. Although not properly documented, Government and Semi Government Oil Companies were able to respond to chemical events. Unfortunately, capacities are now scattered between different stakeholders. Several institutions are responsible for chemical safety management and chemical events in Libya. These institutions include the Ministries of Health, Water, Defense, Economy & Industry, and Agriculture; the general authorities for Environment, National Security and National Agreement for Chemical Weapons; and the National Petroleum Establishment, universities and research institutions. Some of these institutions are already mandated to manage different aspects of chemical safety management and events utilizing several old laws, policies and SOPs (most of these documents need major updating). Other institutions already took steps to update their guiding documents and SOPs but are awaiting finalization through the different legal channels, including two major proposals related to detection and management of chemical events, namely: The Proposed National Plan for Responding to Environmental Emergencies, and the Proposed National Emergencies Management System. In view of the current political circumstances, timeframes for such political actions are not clear and may take some time.

Capacities of both types of institutions for detecting and managing chemical events are lacking (ranging between very low to low). Similar to other governmental functions, a lack of financial resources is a major gap that is currently hindering the work of all institutions. However, such lack is linked to the political situation that may change anytime. While efforts should continue to make needed financial and human resources available, actions by all concerned stakeholders should be focused on filling other gaps that require minimal financial resources such as human resources development, updating policies, legislations and standard operating procedures, networking and coordination between the different stakeholders through national public health emergency plans.

Recommendations for Priority Actions

- Ensure that IHR multi-sectoral committee is designated as the coordination body for chemical events until a full function national coordination mechanism is established to coordinate the detection and response to chemical events.
- Develop strategy and action plan for surveillance, investigation, diagnostics and response to chemical events.
- Develop national chemical profile and identify 10 chemicals that are risky to health in Libya.
- Strengthen the indicator and event-based surveillance systems to capture chemical events and poisoning through: ensuring the inclusion of syndromes and sources related to chemical events in the event-based surveillance; and establishing a 24/7 poison center to lead the indicator-based surveillance in the country.
- Designate hospitals and build their capacities (staff and equipment) for the management of cases exposed to toxic chemicals.

Indicators and scores

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

Strengths/best practices

The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and their Destruction was ratified and implemented in 2004. Accordingly, Libya's obligations have been fulfilled with respect to the stockpile of all forms of chemical weapons, including chemical precursors. Along with this process, capacities and experience in dealing with waste and hazardous chemicals in terms of destruction as well as in the field of control, detection and decontamination were improved and need to be tapped to improve Libya's capacity in detecting and responding to chemical events.

Some guidelines and manuals on the surveillance, assessment and management of chemical events, intoxication and poisoning are available with the army and other related security agencies. These documents need to be updated and shared with other related sectors (confidentiality is an issue to be addressed).

Areas which need strengthening and challenges

- Lack of human and financial resources is a major challenge that is facing Libya's capacity to detect and respond to chemical events.
- Updating guidelines and SOPs on the surveillance, assessment and management of chemical events, intoxication and poisoning.
- Limited application of the guidelines and manuals on the surveillance, assessment and monitoring due to the insufficient effectiveness in the management of issues associated with chemical events.
- Need for procedures for risk assessment in chemicals surveillance/monitoring, to trigger/mount a response of suitable composition and magnitude.
- Weak central surveillance and monitoring system. There are no chemical reference laboratories, poor technical readiness in various other chemical laboratories.
- There is no functioning poisoning center equipped with reliable laboratory and treatment facilities. As a start, efforts should be concentrated on identifying the most hazardous chemical in the country and build the poison center to detect, inform, and manage these chemicals.
- Designating and equipping health care facilities to be responsible for clinical management of people exposed to toxic chemicals.

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

Strengths/best practices

Most of the international agreements and conventions on chemical safety (Stockholm, Basel, Rotterdam, Minamata, and the Chemical Weapons Convention) are ratified by Libya; accordingly, a lot of international resources might be accessible to the different Libyan stakeholders

- Stockholm Convention on Persistent Organic Pollutants (2005).
- Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction (2004).
- Rotterdam Convention on Certain Hazardous Chemicals in International Trade (2002)
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (2001).

Areas which need strengthening and challenges

- Policies and procedures to ensure permanent control over all activities related to chemical safety management need to be synchronized between all the related stakeholders.
- Multi sectorial/interdisciplinary coordination mechanisms with regard to chemical safety need to be strengthened.
- Flow of information on chemicals surveillance/monitoring between all relevant stakeholders needs to be regulated and improved.
- There is no comprehensive plan for the disposal of chemical waste.
- Lack of the availability of systematic assessment of chemical safety, with the absence of relevant systems and plans.
- There are no real assessments of basic public health related to the topic of chemical safety.

Radiation emergencies

Introduction

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

Target

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

Libya Level of Capabilities

Effective national and global response arrangements and capabilities are essential to minimize the impacts from nuclear and radiological incidents and emergencies. The International Atomic Energy Agency (IAEA) maintains the international Emergency Preparedness and Response (EPR) framework, which is based on the international legal instruments. Libya's capacity and cooperation on adopting this framework is increasing and most of the international conventions are ratified and processes for their implementation are in progress. Several stakeholders are involved in managing issues related to radiation emergencies such as the Ministries of Health, Defense, Interior and Industry as well as others such as petroleum sectors, universities and research centers such as the Nuclear Research Centre. Unfortunately, these capacities are scattered. Coordination and flow of information among all related sectors are weak.

The Libyan Atomic Energy Establishment (LAEE) was established in 1973 to regulate and manage the use of radioactive materials in sectors. In 2008 the Nuclear Regulatory Office (NRO) was established as one of the departments of LAEE. The NRO is the national regulatory authority responsible for the regulatory control of all facilities and activities within the country, including radiation sources and devices used in medical, industrial, and research applications. A new law was drafted awaiting approval through the official channels, which covers all the relevant aspects including: establishment of an independent regulatory authority, nuclear installations, facilities and activities, radiation safety, nuclear safety and security, transport safety, radioactive waste management, and emergency preparedness and response.

Capacities for detecting and managing radiation emergencies are lacking (ranging between very low to low). Similar to other governmental functions, lack of financial resources is a major gap that is currently hindering the work of all institutions. However, such lack is h linked to the political situation that may change anytime. While efforts should continue to make needed financial and human resources available, actions by all concerned stakeholders should be focused on filling other gaps that require minimal financial resources such as human resources development, updating policies, legislations and standard operating procedures, networking and coordination between the different stake-holders through national public health emergency plans.

Recommendations for Priority Actions

- Strengthen coordination mechanisms between all relevant sectors for detecting, reporting and management of radio-nuclear events under the custody of the national nuclear authority and reflect this coordination through the IHR multi-sectoral committee.
- Develop a strategy and action plan for surveillance, investigation, diagnostics and response to radio-nuclear events including establishment of a national radiation monitoring capacity.
- Designate hospitals and build capacities (staff and equipment) for the management of cases contaminated with radio-nuclear events.
- Coordinate risk assessment, communication, planning and monitoring during urgent radio-nuclear events and potential risks of international concern.

Indicators and scores

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

Strengths/best practices

Libya already ratified the international convention on assistance in the case of a nuclear accident or radiological emergency which opens the door for major support and capacity building opportunities.

There is also some expertise in responding to events in industrial petroleum sites that can be tapped to help including:

- Surveillance, monitoring, collecting data and analysis
- Controlling radioactive materials and retrieving orphan sources
- Operation, utilization, maintenance of nuclear facilities
- Radiation and dose measurements and decontamination.

Areas which need strengthening and challenges

- There is no national monitoring system (Early Warning System).
- There is no national reference laboratory for radiation measurements.
- There is no standard operating procedure (SOP's) for dealing with major radio-nuclear events.
- Lack of well-trained medical staff for radiation emergency.
- Lack of detecting/ surveillance equipment.

RE.2 enabling environment in place for management of radiological and nuclear emergencies – Score 2

Strengths/best practices

Four out of the five main international conventions that control the adherence to and implementation of international legal instruments on nuclear emergencies are ratified by Libya, accordingly a lot of international resources are accessible to the different Libyan stakeholders to make sure that Libya is well prepared to detect and respond to radiation emergencies:

- Convention on Early Notification of a Nuclear Accident (Accession and entry into force 2009)
- Convention on Assistance in the Case of a Nuclear Accident or Radiological (Accession and entry into force 1990)
- Convention on Nuclear Safety (Accession and entry into force 2009)
- Convention on physical protection of Nuclear Materials (Accession and entry into force 2000)
- There are plans for national and international transport of radioactive material, samples and waste management including those from hospitals and medical services

Areas which need strengthening and challenges

- There is no national emergency plan to respond to radiation emergencies.
- There are limited human resource capabilities in radiation emergency.
- Limited health care facilities for radiation emergency.

Appendix I: JEE background

Mission place and dates

The mission took place in Tripoli, Libya, 09 to 15 July 2018.

Objectives

Libya is the first country under protracted complex emergency situation to undergo the JEE exercise in the Eastern Mediterranean Region. Thus, the JEE was combined with the national planning.

- Assess the implementation of the IHR public health capacities for surveillance and response to public health events including at points of entry.
- Review all related documents.
- Develop a report describing the progress and gaps in implementing the IHR capacities.
- Recommend priority actions to update and finalize the national plan to achieve and maintain IHR capacities for global health security.
- Develop and cost draft national action plan for health security

Mission team members:

- Dalia Samhouri, Program Area Manager WHO EMRO/WHE/CPI TEAM LEAD
- Mazin Malkawi, WHO EMRO/CEHA TEAM Co-LEAD
- Iman Ahmed, Technical Officer, WHO EMRO//WHE/CPI
- Omar Abuelata, WHO Egypt
- Habiba Mamlouk, IHR National Focal Point, Ministry of Health, Tunisia
- Heba Mahrous, Food and Agriculture Organization
- Peggy Hanna, Risk Communication Consultant
- Tareq Alsanouri, EMPHNET

The JEE process

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

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

Preparation and implementation of the mission

- Prior to the visit, several communications took place with assessment team members and experts in Libya to review the agenda, responsibilities, and logistics.

- A training was conducted for EMR Crisis Countries 16-18 October 2017, to provide national stakeholders with the information and resources necessary to participate successfully in the JEE process; and to provide guidance on self-reporting requirements and responsibilities specific for these settings.
- A national Core Team was identified to conduct site visits and follow-up on the country self-assessment. The team visited Points of Entry, health facilities, and laboratories using standardized checklists developed for conducting JEE in Crisis Countries. The team provided consistent support to national counterparts in completing the necessary technical input.
- Background documents were collected and shared with the JEE team along with the complete JEE tool for review.
- An orientation was provided in-country to the JEE experts from 7-8 May 2018, on the process, tool, objectives and expected outcomes, and to discuss and finalize the agenda of the mission. The Regional Office continued to provide support both remotely and with deployment of staff, while the Country Office supported logistics to facilitate the mission, including communication/advocacy with diverse stakeholders and partners, including parliamentarians and MoH leadership, to partake in the mission.
- The JEE was also combined with country planning where 3 additional days were added to cover the operationalization of the Technical Area Priority Actions – the same national counterparts were galvanized to begin their NAPHS thus concluding the mission with a developed national plan for health security, thus ensuring consistency.
- Meetings with the relevant stakeholders were conducted to validate the collected information and to reach a consensus on the scores and priority actions.
- A debriefing meeting was held with senior officials and with national technical teams involved in the evaluation to present the outcomes of the JEE, best practices and priority actions.

Limitations and assumptions

Assumptions

- The results of this assessment will be made publicly available.
- The assessment is not an audit, and while information provided by Libya was cross-checked and validated by the team as far as possible, everything could not be independently validated.
- This is a peer-to-peer review. Information provided by Libya was discussed and an assessment rating was mutually agreed between the host country and assessment team.

Limitations

- The assessment was of one week duration, which limited the amount and depth of information that could be managed.
- Some background documents were only available in the local language. While the national team could summarize the content of these documents, a review of the background documents was limited.
- The evaluation meetings were conducted at the national level. Having peripheral level represented might have affected the scores, particularly as no field visits could be conducted, due to the short duration of the mission.

Key host country participants and institutions

Libya lead representative:

H.E. Dr Omar Bashir Eltaher, Minister of Health, Ministry of Health, Libya

Participating institutions:

Libya Ministry of Health & National Center for Disease Control

- Dr Badereddin B. Annajar, Director General of NCDC, IHR NFP
- Dr Omar R. Elahmer, Director of Laboratory, NCDC, IHR NFP

List of Technical Teams

No.	Name	Affiliation
1	Salah Alghannay	National Centre for Disease Control (NCDC)
2	Mansora Elmarimy	Environment General Authority (EGA)
3	Mohamed Daganee	National Centre for Medical Information
4	Basem Tlag	Food and Drug Control Centre (FDCC)
5	Mohamed Hawisa	National Centre for Animal Health (NCAH)
6	Mufida Altunsi	EGA
7	Omar Elahmer	NCDC
8	Abdulaziz Zorgani	University of Tripoli
9	Tarek Gebreel	University of Tripoli
10	Ali Alahmed	NCAH
11	Najib Bishr	NCDC
12	Taher Shaibi	NCDC
13	Badereddin Annajar	NCDC
14	Hatem Elmselati	NCAH
15	Nasereddin Ashaflo	NCAH
16	Iman Ben Hamza	EGA
17	Salem Abudher	FDCC
18	Abdulrhman Almarimi	FDCC
19	Abdalah Aldaas	FDCC
20	Aml Lawila	FDCC
21	Abdulaziz Elbuni	Libyan National Committee for Biosafety and Bioethics (LNCBB)
22	Abdulla Beshein	NCDC
23	Walid Saadawi	NCDC
24	Najwa Altrabulsi	National Centre for Animal Health
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27	Abdulrahman Saud	NCDC
28	Mohamed Abugalia	International Organization for Migration (IOM)
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44	Abdulatif Beshia	NCAH
45	Kamal Arebi	Ministry of Health (MoH)
46	Kamel Taloa	MoH
47	Abduladim Habibi	MoH
48	Mohamed Abdullah	MoH
49	Mohamed Zaguba	National Safety Authority
50	Mohamed Alfetori	Ministry of Defense
51	Jamal Abdulnaser	Customs Department
52	Jaber Alsakoh	Ministry of Interior Department of Ports
53	Baheej Ammar	NCAH
54	Emhemmed Khsheba	Medical Supply Organization
55	Merei Elgazwi	Medical Supply Organization
56	Abdulla Farhat	NCDC
57	Noora Altrhony	NCDC
58	Ali Diernaw	Ministry of Health / Diabetic Centre
59	Abdulhakim Atiwa	Technical cooperation office (NCDC)
60	Ahmed Ejaeidi	Technical cooperation office (NCDC)
61	Mohamed Alkabir	Media office (NCDC)
62	Baheej Ammar	NCAH
63	Moktar Almnsore	Cross boarding Rass Ejdaer (NCDC)
64	Ibrahim Alsharie	Sea port Toubrk
65	Abdalhamed Gerged	Sea port Musrath
66	Ramadan Albakosh	International Health Control Office (NCDC)
67	Ahmed Walid	National Authority for Chemical Weapons Convention
68	Ali Mustafa Mohammed	EGA
69	Ali Gachut	Office of the Atomic Energy Foundation
70	Ali Turki	Nuclear Research Centre
71	Lutfi almalul	Nuclear Research Centre
72	Khaled Elorfe	Office of the Atomic Energy Foundation

Appendix II: Supporting documentation provided by host country

National legislation, policy and financing

- Law No. 1 (1965) by Council of Ministers on prevention of infectious and epidemic animal diseases.
- Law No. 27 (1968) on Plant Protection and its Executive Regulations 621 (2012).
- Health law No. 106 (1973) and its executive regulations by decree No. 654 (1974).
- Law No. 5 (1990) on establishing of Libyan National Centre for Standardization and Metrology (Article 4) on specification and standards.
- Decree No 330 (2001) by the General People's Committee on Organizing public hospitals and specialized centers.
- Decree No. 78 (2002) by the General People's Committee on merging a number of centers, the Tuberculosis and Chest Diseases Control Center, the Center for Combating Communicable and Endemic Diseases, the National Center for Medical Research and the National AIDS Committee into one center under the name of the National Center for the Prevention and Control of Communicable and Endemic Diseases.
- Law No. 15 (2003) on protection and improvement of the environment (Article 1 to Article 6, paragraph 4, and paragraph 14 - Article 10 - Article 15 - Article 52 (Common Diseases) - Article 53 (Soil and Flora Protection) and its Executive Regulation No. 448 (2009) (Articles 1 to 4 - Article 21 to 24 - Article 27 - Article 36 - Article 44 - Article 49 - Article 50).
- Chemical law No. 4 (2005) on provisions for the transport of hazardous materials on public roads and its executive regulations.
- Decision 319 (2006) of the Secretary of the General People's Committee for inspection and popular control on establishing of the Food and Drug Control Center and its vested with the functions assigned to the General Organization for the Control of Goods and Products in relation to the control of food and medicine.
- Decree No. 12 (2006) by the General People's Committee to transfer the quarantine dependency to National Center for the Prevention and Control of Communicable and Endemic Diseases.
- Decree No. 281 (2010) by the General People's Committee on renaming of National Center for the Prevention and Control of Communicable and Endemic Diseases to National Center for Disease Control (NCDC).
- Decree No. 100 (2012) by the Council of Ministers on establishing of the National Center for Animal Health.
- Decision No. 947 (2013) by the Minister of Health on adoption of organizational chart of National Center for Disease Control.
- Decision No. 287 (2015) by the Minister of Agriculture and Marine wealth on adoption of organizational chart of National Center for Animal Health.
- Memorandum of understanding between the National Center for Disease Control and the National Center for Animal Health on zoonotic diseases (2016).

IHR coordination, communication and advocacy

- Law No. 1 (1965) by Council of Ministers on prevention of infectious and epidemic animal diseases.
- Civil defense law No. 11 (1971).
- Health law No. 106 (1973) and its executive regulations by decree No. 654 (1974).
- Radiation Prevention Law No. 2 (1982).
- Law No. 15 (2003) on the protection and improvement of the environment (Article 1 to Article 6, paragraph 4, and paragraph 14 - Article 10 - Article 15 - Article 52 (Common Diseases) - Article 53 (Soil and Flora Protection) and its Executive Regulation No. 448 (2009) (Article 1 to Article 4 - Article 21 to 24 - Article 27 - Article 36 - Article 44 - Article 49 - Article 50).
- Decision on 2010 by the General People's Committee for Health on designation of National Center for the Prevention and Control of Communicable and Endemic Diseases as IHR National focal point.
- Decision on 2010 by the Director of the National Center for the Prevention and Control of Communicable and Endemic Diseases on establishing IHR multisectoral committee.
- Memorandum of understanding between the National Center for Disease Control and the National Center for Animal Health on zoonotic diseases (2016).

Antimicrobial resistance

- Drafted AMR National action plan with the support of WHO-EMRO (2018)

Zoonotic diseases

- Law No. 1 (1965) by Council of Ministers on prevention of infectious and epidemic animal diseases.
- Decree No. 309 (1987) by the General People's Committee on some procedures for animal health.
- Decision by the Director General of NCDC on adopting Malaria Control National Program (2004).
- Decision by the Director General of NCDC on adopting Leishmaniasis Control National Program (2006).
- National Guidelines for Avian Influenza Action "animal cases" (2006).
- Proposal of the national strategy for influenza control (2007).
- Role of EGA on Combating Plague in Al Batnan Governorate (2009 report).
- Decree No. 281 (2010) by General People's Committee on Nomenclature and terms of reference of the National Center for the Prevention and Control of Communicable and Endemic Diseases to National Center for Disease Control (NCDC).
- Decree No. 281 (2010) by General People's Committee on Nomenclature and terms of reference of the National Center for the Prevention and Control of Communicable and Endemic Diseases to National Center for Disease Control (NCDC).
- Decree No. 100 (2012) by the Council of Ministers on establishing of the National Center for Animal Health and its organizational chart.
- Decision by the Director General of NCDC on adoption of action plan for Rabies Control in (2012).
- Decision No. 947 (2013) by Minister of health on adoption of the organizational chart of National Center for Disease Control.

- Decree No. 18 (2013) by Chairman of the Environment General Authority on adoption of EGA organizational chart.
- Memorandum of understanding between the National Center for Disease Control and the National Center for Animal Health on zoonotic diseases (2016).
- NCAH annual report (2017).
- Report submitted to OIE regarding avian influenza in Gharian (2017).
- Notification lists for public health and animal health adopted by NCDC & NCAH.

Food safety

- Health Law No. 106 (1973) and its executive regulations by decree No. 654 (1974).
- Law No. 5 (1990) on establishing of Libyan National Centre for Standardization and Metrology (Article 4) on specification and standards.
- Decision 319 (2006) of the Secretary of the General People's Committee for inspection and popular control on establishing of the Food and Drug Control Center and its vested with the functions assigned to the General Organization for the Control of Goods and Products in relation to the control of food and medicine.
- Decree No. 629 (2007) by General People's Committee's on adoption of the Decision 319 (2006) of the Secretary of the General People's Committee for inspection and popular control.
- Decision 117 (2007) by the Director General of Food and Drug Control Center on adoption of organizational chart of Food and Drug Control Center.
- Mutual Recognition Agreement for products certificate between Libya and Tunis (2007).
- Drafted guidelines on food inspection procedures at points of entry (2015).
- Decision 28 (2017) by the Director General of Food and Drug Control Center on adoption of food product and pharmaceutical samples guidelines.
- Drafted guidelines for food test procedures (2018).

Biosafety and biosecurity

- Health law No. 106 (1973) and its executive regulations by decree No. 654 (1974).
- Protocol of agreement between LNCBB and U S Sandia National Laboratories (2012).
- LNCBB Drafted of Infectious medical waste management Legislation (2012).
- LNCBB Drafted National Biosecurity Bill on the Prohibition Use of Biological and Toxin Weapons (2012).
- LNCBB Drafted Biosafety manual (guideline) (2015).
- WHO Guidance on regulations for the Transport of Infectious Substances 2015–2016.
- LNCBB with EGA (Environment General Authority) Drafted of Bio-safety Legislation 2016.
- Global Bio-risk management curriculum GBRMC.

Immunization

- Pan Arab Project Family Health (PAP FAM) survey (2014).
- Decision No. 68 (2013) by General Director of NCDC on establishing of National Immunization Technical Advisory Group (NITAG).

- Decision on (2017) by Director General of NCDC on updating the National Immunization Schedule.
- Service Availability and Readiness Assessment of the public health facilities in Libya (2017).
- Post polio vaccination campaign monitoring report (2017).

National laboratory system

- Health law No. 106 (1973) and its executive regulations by decree No. 654 (1974).
- WHO guidelines for the collection of clinical specimens during field investigation of outbreaks (2000).
- WHO laboratory biosafety manual (2004).
- WHO Biorisk management Laboratory Biosecurity Guidance (2006).
- Decision No. 947 (2013) by the Minister of Health on adoption of the organizational chart of National Center for Disease Control.
- Memorandum of understanding between National Centre for disease Control and National Centre for Animal Health (2016).
- WHO guidance on regulations for the transport of infectious substances (2017–2018).

Real-time surveillance

- Law No. 1 (1965) by Council of Ministers on prevention of infectious and epidemic animal diseases.
- Health Law No. 106 (1973) and its executive regulations by decree No. 654 (1974).
- List of notifiable disease decree from MoH (1993).
- Decree No 330 (2001) by the General People's Committee on Organizing public hospitals and specialized centers.
- Decree No. 78 (2002) by the General People's Committee on merging a number of centers, the Tuberculosis and Chest Diseases Control Center, the Center for Combating Communicable and Endemic Diseases, the National Center for Medical Research and the National AIDS Committee into one center under the name of the National Center for the Prevention and Control of Communicable and Endemic Diseases.
- Law No. 15 (2003) on protection and improvement of the environment (Article 1 to Article 6, paragraph 4, and paragraph 14 - Article 10 - Article 15 - Article 52 (Common Diseases) - Article 53 (Soil and Flora Protection) and its Executive Regulation No. 448 (2009) (Article 1 to Article 4 - Article 21 to 24 - Article 27 - Article 36 - Article 44 - Article 49 - Article 50).
- Decree No. 281 (2010) by General People's Committee on Nomenclature and terms of reference of the National Center for the Prevention and Control of Communicable and Endemic Diseases to National Center for Disease Control (NCDC).
- Decree No. 100 (2012) by the Council of Ministers on establishing of the National Center for Animal Health.
- Decision No. 287 (2015) by the Minister of Agriculture and Marine wealth on adoption of organizational chart of National Center for Animal Health.
- Memorandum of understanding between the National Center for Disease Control and the National Center for Animal Health on zoonotic diseases (2016).
- Standard operating procedures (SOPs) on EWARN (2017).

Reporting

- Law No. 1 (1965) by Council of Ministers on prevention of infectious and epidemic animal diseases.
- Health Law No. 106 (1973) and its executive regulations by decree No. 654 (1974).
- Law No. 15 (2003) on protection and improvement of the environment (Article 1 to Article 6, paragraph 4, and paragraph 14 - Article 10 - Article 15 - Article 52 (Common Diseases) - Article 53 (Soil and Flora Protection) and its Executive Regulation No. 448 of 2009 (Article 1 to Article 4 - Article 21 to 24 - Article 27 - Article 36 - Article 44 - Article 49 - Article 50).
- Decision on 2010 by the General People's Committee for Health on designation of National Center for the Prevention and Control of Communicable and Endemic Diseases as IHR National focal point.
- Memorandum of understanding between the National Center for Disease Control and the National Center for Animal Health on zoonotic diseases (2016).
- MoA decree for designated OIE delegator and WAHIS NFP (2017).
- Standard operating procedures (SOPs) on EWARN (2017).
- Notification reports of IHR NFP to WHO.
- Notification reports of NCAH to OIE.

Workforce development

- Law No. 1 (1965) by Council of Ministers on prevention of infectious and epidemic animal diseases.
- Decree No. 78 (2002) by the General People's Committee on merging a number of centers, the Tuberculosis and Chest Diseases Control Center, the Center for Combating Communicable and Endemic Diseases, the National Center for Medical Research and the National AIDS Committee into one center under the name of the National Center for the Prevention and Control of Communicable and Endemic Diseases.
- Law No. 15 (2003) on protection and improvement of the environment (Article 1 to Article 6, paragraph 4, and paragraph 14 - Article 10 - Article 15 - Article 52 (Common Diseases) - Article 53 (Soil and Flora Protection) and its Executive Regulation No. 448 of 2009 (Article 1 to Article 4 - Article 21 to 24 - Article 27 - Article 36 - Article 44 - Article 49 - Article 50).
- Decree No. 281 (2010) by General People's Committee on Nomenclature and terms of reference of the National Center for the Prevention and Control of Communicable and Endemic Diseases to National Center for Disease Control (NCDC).
- Higher Education Regulation No. 501 (2010).
- Libyan Labour Relations Law No. 12 (2010).
- Decree No. 100 (2012) by the Council of Ministers on establishing of the National Center for Animal Health.
- Decision No. 05 (2010) by the Secretary of the General People's Committee for Health and Environment on adoption of Infection Control Programs in Hospitals.
- Decision No. 947 (2013) by Minister of Health on adoption of the organizational chart of National Center for Disease Control.
- Decision No. 436 (2014) by Minister of Health on adoption the Regulation dispatch of the National Center for Disease Control.
- Decision No. 439 (2014) by Minister of Health on adoption Financial and Administrative Regulation of the National Center for Disease Control.

- Decision No. 287 (2015) by the Minister of Agriculture and Marine wealth on adoption of organizational chart of National Center for Animal Health.
- The internal training list of the National Centre for Disease Control.

Preparedness

- National Polio outbreak Preparedness and Response Plan (2017).
- Surveillance standard operating procedures (2017).
- Decision by the Minister of Health on establishing of Emergency Management Directorate at Ministry of Health (2017).

Emergency response operations

- Law No. 1 (1965) by Council of Ministers on prevention of infectious and epidemic animal diseases.
- Civil defense Law No. 11 (1971).
- Law No. 54 (1973) on establishing of Libyan Nuclear Atomic Establishment (LNAE).
- Law No. 4 (2005) on provisions for the transport of hazardous materials on public roads.
- Decision 319 (2006) of the Secretary of the General People's Committee for inspection and popular control on establishing of the Food and Drug Control Center and its vested with the functions assigned to the General Organization for the Control of Goods and Products in relation to the control of food and medicine.
- Decree No. 629 (2007) by General People's Committee's on adoption of the Decision 319 (2006) of the Secretary of the General People's Committee for inspection and popular control.
- Decree No. 398 (2008) by the General People's Committee on establishing of Ambulance Services.
- Decree No. 100 (2012) by the Council of Ministers on establishing of the National Center for Animal Health.
- Decision No. 287 (2015) by the Minister of Agriculture and Marine wealth on adoption of organizational chart of National Center for Animal Health.
- Standard Operations Procedures (SOPs), EWARN system (2017).
- Decision by the Minister of Health on establishing of Emergency Management Directorate at Ministry of Health (2017).
- Decree No. 995 (2018) by the Presidential Council on establishing of the Flying Ambulance Services.
- Decree No. 1353 (2018) by the Presidential Council to establish Six Integrated Health Districts in Libya affiliated to the Ministry of Health.

Linking public health and security authorities

- Law No. 1 (1965) by Council of Ministers on prevention of infectious and epidemic animal diseases.
- Civil defense Law No. 11 (1971).
- Health Law No. 106 (1973) and its executive regulations by decree No. 654 of 1974.
- Decree No. 309 (1987) by the General People's Committee on some procedures for animal health.
- Customs Law No. 10 (2010).
- Decree No. 437 (2008) by the General People's Committee on establishing of the National Safety Authority.

Medical countermeasures and personnel deployment

- Law No. 1 (1965) by Council of Ministers on prevention of infectious and epidemic animal diseases.
- National guideline for pandemic Influenza (2005).
- Libyan Policy Action Plan on Medicines and Medical Devices adopted (2003) revised (2013).

Risk communication

- Risk Communication Strategy Framework – NCDC (2015).
- Memorandum of understanding between the National Center for Disease Control and the National Center for Animal Health on zoonotic diseases (2016).
- PPT presentations by NCDC about risk communication in Malaysia (July 2016).
- PPT presentations by NCDC about risk communication in Tunisia (August 2016).
- National Polio outbreak preparedness and response plan (2017).
- Measles Elimination Program Reports 2018.
- Mandate Media and Documentation Office at NCDC.

Points of entry

- Health Law No. 106 (1973) and its executive regulations by decree No. 654 (1974).
- Decree No. 12 (2006) by the General People's Committee to transfer the quarantine dependency to National Center for the Prevention and Control of Communicable and Endemic Diseases.
- Decision No. 117 (2009) by the Secretary of the General People's Committee for Health and Environment on quarantine units.
- Decision No. 947 (2013) by Minister of Health on adoption of organizational chart of National Center for Disease Control.

Chemical events

- Law No. 27 (1968) on Plant Protection and its Executive Regulations 621 (2012).
- Law No. 11 (1971) on Civil Defense.
- Decree No. 462 (1977) concerning procedures for importing pesticides for agricultural purposes.
- Resolution No. 461 (1977) on classification of agricultural pesticides according to the degree of toxicity to humans and animals.
- Decree No. 460 (1977) concerning the conditions necessary for registration of pesticides to be allowed to be traded in Libya.
- Resolution 205 (1985) promulgating the Industrial Safety and Protection Regulations.
- Resolution 495 (2001) on establishing of a free zone in Misrata.
- Decree No. 37 (2001) on registration of all types of chemicals that may result in pollution.
- Law No. 9 (2002) on regulating the transit trade and free zones.
- Law No. 15 (2003) on protection and improvement of the environment (Article 1 to Article 6, paragraph 4, and paragraph 14 - Article 10 - Article 15 - Article 52 (Common Diseases) - Article 53 (Soil and Flora Protection) and its Executive Regulation No. 448 (2009) (Article 1 to Article 4 - Article 21 to 24 - Article 27 - Article 36 - Article 44 - Article 49 - Article 50).

- Decree No. 620 (2004) Concerning the Regulation of Trading of Agricultural Pesticides.
- Chemical law No. 4 (2005) on the provisions for the transport of hazardous materials on public roads.
- Resolution 145 (2006) on formation of a committee to follow up the trading, sale and storage of agricultural and veterinary pesticides.
- Resolution 57 (2007) on formation of the committee for registration of agricultural pesticides.
- Decree No. 776 (2007) concerning the establishment of the National Company for Veterinary Medicine and Agricultural Pesticides.
- Decree No. 437 (2008) on establishing of the National Safety Authority.
- Resolution 9 (2008) on the regulation of export and import.
- Decree No. 489 (2009) on establishing the National Authority to Monitor the Execution of the Chemical Weapons Ban in the Great Jamahriya and adopting certain provisions.
- Decree No. 448 (2009) on executive regulations of law No. 15 (2003) on the protection and improvement of the environment.
- Decree No. 64 (2009) on regulation of the circulation of agricultural pesticides.
- Decree No. 145 (2018) on establishing of a committee for the registration of agricultural pesticides.

Radiation emergencies

- Law No 54 (1973) on establishing the Libyan Nuclear Atomic Establishment (LAEE).
- Law No 93 (1976) on industrial safety and occupational health.
- Convention on Assistance in the Case of a Nuclear Accident or Radiological (1990).
- Decree No. 132 (1996) on establishing emergency plan for TNRC.
- Convention on physical protection of Nuclear Materials (2000).
- Convention on Early Notification of a Nuclear Accident (2009).
- Convention on Nuclear Safety (2009).
- Decree No. 80 (2010) for inspection, control of all radioactive sources and radiation emitting devices.
- Drafted nuclear law (2016).

