Humanitarian crisis in Libya

Public health risk assessment and interventions

May 2015
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# Acronyms and abbreviations

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<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>EPI</td>
<td>Expanded Programme on Immunization</td>
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<tr>
<td>MOH</td>
<td>Ministry of Health</td>
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<td>NCDC</td>
<td>National Centre for Disease Control</td>
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<tr>
<td>NGO</td>
<td>Nongovernmental Organization</td>
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<tr>
<td>OCHA</td>
<td>Office for the Coordination of Humanitarian Affairs</td>
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<tr>
<td>PHC</td>
<td>Primary Health Care</td>
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<tr>
<td>WASH</td>
<td>Water, Sanitation and Hygiene Cluster</td>
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<td>WHO</td>
<td>World Health Organization</td>
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Preface

The purpose of this public health risk assessment is to provide all health sector partners, including professionals working for local and national authorities, nongovernmental organizations (NGOs), donor agencies and United Nations agencies that are currently supporting populations affected by the emergency in Libya, with up-to-date technical guidance on the major public health threats faced by the affected population.

The health threats have been selected on the basis of the burden of morbidity, mortality and potential for increased burden of disease in the affected areas.

These public health threats represent a significant challenge to the people providing health-care services in this evolving situation. It is hoped that this risk assessment will facilitate the coordination of activities among all partners working among the populations currently affected by the crisis and that it will help guide needs assessments and the orientation of emergency health response strategies.
Executive summary

Libya has suffered a number of crises in recent years, including armed clashes that have led to thousands of people being killed and injured, large-scale displacements and damage to vital infrastructure. On 24 December 2014 it was estimated that 2.5 million people were in need of humanitarian assistance. The Humanitarian Country Team estimates that the 435,000 internally displaced persons (IDPs) are particularly at risk.

The repeated emergencies since 2013 have not allowed a proper recovery of public sector services following the 2011 uprising and civil war, especially health services which were already weak and suffering from several deficiencies, including:

- dependence on foreign health workers, especially in the southern part of the country;
- a debilitated primary health-care (PHC) network, especially in the main cities (Benghazi and Tripoli);
- a substantial proportion of health expenditure being spent on sending Libyans for treatment abroad;
- neglected health services in some areas (predominantly in the southern part of the country).

The recent clashes (since August 2014) have contributed to further weakening of the health sector for the following reasons:

- Some health facilities became inaccessible because of new security constraints and some were damaged or looted. Access to health services is severely limited in Benghazi, Kikla, Zintan, Brak and Aubari. This also caused a considerable overloading of the accessible health facilities (especially in areas with a high influx of IDPs).
- A significant number of foreign health workers have left the country, which has seriously affected health response capacity and the functionality of health facilities.

The emergency medical system, which was already weak before the escalation in violence, has collapsed in many areas. Emergency transportation to hospitals has been adversely affected due to the prevailing security situation and occasionally because of fuel shortages and poor communications.

In addition, Libya is witnessing a steady decline in its national revenues (reduced oil exports along with falling prices). Together with the ongoing political and security situation, the financial situation is affecting the health system. Shortages of drugs and medical supplies are occurring and budgetary cuts are decreasing the number of patients sent abroad, which puts an additional burden on the already weakened Libyan health-care system.
An increase in the number of armed clashes, targeted attacks (such as car bombs) and kidnappings by armed groups in Libya has added a new challenge to health access in certain cities, such as Darna and Sirte, in recent months.

**Crisis impact**

**Displacement**
The total number of IDPs in Libya is now 435,000 according to OCHA. The majority are in the western part of the country.

The displaced people are scattered around 35 towns and cities, and in many cases have been displaced more than once.

The true scale of internal displacement and the humanitarian needs of displaced persons is not clear; according to local authorities and nongovernmental organizations (NGOs) they are lacking shelter, health care, food, water and other basic commodities. Host communities are also under pressure, many no longer able to cope with absorbing the large numbers of displaced persons.

Shortages of food, fuel, water, medical supplies and electricity, as well as reduced access to health care and public services, have worsened since June 2014.

**Casualties of the armed conflict**
Fighting reportedly continued in Benghazi, Ubari, and recently in Brak City, near Sirte, and most areas west and southwest of Tripoli. Security conditions and lack of access to affected areas remain major challenges for both national and international humanitarian aid workers and are hampering the delivery of vital aid to affected populations in those areas.

While the overall casualty figures remain to be confirmed, it was estimated that there were more than 15,000 people weapon-wounded in Benghazi alone between May 2014 and May 2015. The recent clashes in western parts of Libya also resulted in significant casualties.

The escalation of the fighting in Aubari has resulted in significant displacement of Touareg families outside the city seeking shelter and medical aid, while victims from Tabu are transported to Murzuq Hospital located 200 km south-west of Aubari.
Health system impact

Health services. Access to health services has become a major concern mainly in Benghazi, Zintan, Kikla, Ghat and Aubari. The fighting has restricted the movements of health workers and those seeking health services in the conflict-affected areas. Health infrastructure is being destroyed, further reducing the availability of health services. For example, Al Zahra Kidney Hospital near Tripoli was severely damaged and looted during April 2015 clashes.

Following the escalation of fighting in 2014, hospitals in Benghazi struggled to cope with the large numbers of casualties. In addition, many hospitals in Benghazi have been forced to close for security reasons. These include Al Hawwary, 7th October, Al Jomhoria, and Psychiatry hospitals. Benghazi Medical Center (BMC) is now the main provider of hospital care services in the city as Al Jala Hospital, the main trauma hospital in Benghazi, is only partly functional. The second wing of BMC was opened to replace Al Jomhoria Hospital in providing obstetric and gynaecological services to Benghazi and neighboring areas, and a new dialysis unit was opened in in the BMC for patients of Al Hawwary Hospital.

Kikla, Zintan and Aubari hospitals are inaccessible to patients and some hospitals such as Ghat, Sorman, Darna, Misrata main hospital, Al Ajailat, Jmail, and the main PHC polyclinics in Tripoli and Benghazi have been closed for years because of unfinished maintenance.

Care for patients with chronic diseases, disabilities and mental health disorders is compromised by restricted access to the few functioning health facilities. New waves of internal displacement have added to the burden on the hospital staff treating such patients in BMC, Al Marj, Al Baida, Tobruk, Ajdabia, Sirte and Misrata.

The situation of women and children has become particularly vulnerable, since the hospitals are overwhelmed with trauma patients, which often restricts access for other patients in need of clean surgical facilities (including pregnant women).

Human resources for health. The health workforce is being rapidly drained due to qualified staff leaving the country and those remaining facing barriers to accessing health facilities. There is also a shortage of medical professionals as a result of the departure of foreign medical workers; on the other hand, ensuring the safety of health staff in the affected areas is a serious concern. In addition, the phenomenon of “ghost health personnel” (whereby health workers are on the payroll but do not turn up for work) is contributing to the lack of health personnel.

Medical supplies. There are extensive shortages of medicines and medical supplies, and vaccine stocks are diminishing. Inaccessibility to essential medicines is caused by a lack of security or interruptions to supplies and deliveries. Most of the medical warehouses in the east of the country have been destroyed or are
located in hard-to-access, conflict-affected areas. There are severe shortages of medicines for chronic diseases, including insulin, and critical shortages of medicines to treat tuberculosis (TB) and HIV/AIDS, blood derivatives, laboratory reagents, anaesthetics and kidney dialysis supplies and anti-neoplastic medicines, as well as obstetric supplies and maternal and child health medicines and supplies. Severe shortages of dressing materials, internal fixators for fractures, and intravenous fluids are also reported in some hospitals.

**Health finance.** Constraints facing Libya’s finances and a scarcity of budgetary allocations for have had a significant impact public services including health.

**Health information system.** In 2014, only 7 out of 36 surveillance officers were still reporting to the main centre in Zliten.

**Immediate priorities for health response**

The immediate health response priorities are:

a. Restoration of emergency and essential primary and secondary health services for trauma, infectious diseases, emergency surgical conditions, childhood illnesses and reproductive health (especially safe deliveries/obstetric care and acute new-born care) and continuity of treatment of chronic conditions.

b. Procurement, storage and distribution of life-saving and essential medicines and supplies including trauma and surgical medicines and supplies, and medicines for noncommunicable diseases (NCDs).


d. Support to operational readiness for emergency response in the areas of leadership and coordination, capacity for surveillance, infection control precautions, laboratory diagnosis, and risks for communicable diseases under the International Health Regulations (2005), including Ebola preparedness.

e. Close collaboration with the water, sanitation and hygiene sector in outbreak contingency planning.

f. Restoration of health service availability and the functionality of assessments of health facilities.

**Health sector priorities**

The second Libyan Country Cooperation Strategy (CCS) for 2010–2014 was developed in 2009; a review of this CCS became necessary following the start of the armed conflict beginning in February 2011. Since mid-2014, the level of inter-country cooperation and health aid coordination among the different districts, especially between the east and the west, have become less effective. There is a
clear need to adopt a new approach to define urgent health needs in Libya that ensure national ownership of the CCS. Therefore, a meeting with Libyan health authorities from the different parts of the country was organized in January 2015 to reach a consensus about the health sector priorities for the whole country.

Health system reform (including human resources development, health economics, information systems and organization and management of services), capacity building, and formulation of a national health policy remain priorities. In addition to advocacy for prevention and management of HIV/AIDS and health promotion, priorities also include the strengthening of surveillance for communicable and noncommunicable diseases.

Non-health sector priorities impacting health

Provision of life-saving protection and humanitarian assistance such as:
- food;
- non-food items;
- water, sanitation and hygiene activities;
- access for internally displaced children to education;
- humanitarian assistance to migrants and vulnerable persons, including transportation to country of origin, post-arrival and family reunification assistance;
- protection activities, such as working to ensure that all those involved in the fighting respect their obligations to preserve the safety, physical integrity and dignity of the population.
1. Background and risk factors

1.1 Country information

Libya is located in North Africa on the southern coast of the Mediterranean Sea between 18° and 33° north latitude and 9° and 25° east longitude. It has a total land area of 1,775,500 square kilometres, making it the third-largest country in Africa. It shares a border with six other African countries (Algeria, Chad, Egypt, Niger, Tunisia and Sudan) and has a coastline of around 1,900 kilometres.


The main cities are located in the northern part of the country along the coast. The six largest cities are (in descending order of population size) Tripoli, Benghazi, Alzawia, Musrata, Derna and Sirte.

The administrative system of Libya is relatively decentralized. The country is divided into 22 districts; each district consists of a number of local councils, and has functional secretariats responsible for the planning, implementation, monitoring and evaluation of the health, education, economic and other sectors.

In 2010, the total estimated population of Libya was 6.5 million people, one of the lowest population densities in the world. Density is divided into two distinct geographical areas: the northern part, which is relatively densely populated, with 85% of the population on 10% of the land area; and the southern part, which is much less populated.

Over the three decades up to 2011, the Libyan authorities invested significantly in health services, leading to major improvements in health-service delivery and in the general health of the population, as reflected in health indicators. However some significant challenges remained, most notably:

- insufficient national health information and therefore lack of accurate health indicators concerning the causes of mortality and morbidity;
- the highest incidence of HIV/AIDS among intravenous drug users in the world;
- the burden of disease shifting towards NCDs (over the past 20 years). Cardiovascular disease, hypertension, diabetes and cancer account for significant morbidity, and the main causes of death are cardiovascular diseases (43.2%), cancer (13.6%), respiratory diseases (13.6%) and diabetes (5%).
Box 1.1 Demographic data: key indicators

<table>
<thead>
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<th>Total population</th>
<th>6.3 M</th>
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<tr>
<td>Population growth rate</td>
<td>2.8%</td>
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<tr>
<td>Crude birth rate</td>
<td>24.9%</td>
</tr>
<tr>
<td>Crude death rate</td>
<td>4.1%</td>
</tr>
<tr>
<td>Life expectancy at birth</td>
<td>72.3</td>
</tr>
<tr>
<td>Fertility rate</td>
<td>2.41</td>
</tr>
<tr>
<td>Urban population</td>
<td>86%</td>
</tr>
</tbody>
</table>

*Source: General Authority of Information, Libya*

1.2 Crisis impact

Intense fighting among rival armed groups in Libya in 2014 has created a deteriorating displacement crisis, already severe, with the number of people displaced now standing at 435 000 according to OCHA.

Accurate statistics on injuries cannot be obtained, but about 20 000 people are estimated to have been injured in the conflict since July 2014 across the country. The situation is still volatile, and recent fighting near Tripoli, Sirte and Darna has increased the toll of deaths and injuries.

Hospitals, particularly in Benghazi and Tripoli, are facing difficulties in coping with the increased number of conflict-related injuries. This is compounded by non-functional PHC services, and the additional burden of IDPs. In addition, hospitals in conflict zones are either closed or receive large numbers of weapon-wounded patients.

Lack of security also causes shortages of health-care workers in conflict zones.
### 1.3 Current health situation

Lack of health information makes it difficult to assess the magnitude of the impact of the crisis on public health.

Essential medicines, haemodialysis, orthopaedic supplies, HIV medicines, and oncology medicines, among other medical and surgical supplies, consumables and devices, are urgently needed, especially in areas with a high influx of IDPs. There is reduced access to care for patients with chronic diseases and mental health disorders, and severely reduced access to care and rehabilitation services for patients with disabilities (including newly acquired physical disabilities as a result of the conflict).

Shortages of medical and surgical supplies have occurred in the eastern part of Libya due to damage sustained by a medical stock warehouse in Benghazi in July 2014, and also in the western and southern parts of the country as a result of the closure of roads and security concerns. Some hospitals, especially in the east, are out of stock and unable to receive new stocks due to logistics problems.

Access to hospitals remains a challenge for national health staff and international aid workers.

No communicable disease outbreaks have been reported in Libya to date, however, with the increasing temperatures in the summer months, further increases in cases of diarrhoeal diseases can be anticipated in crowded living environments and given the extremely bad water and sanitation situation in the main cities (especially in Benghazi).

The weak surveillance system and uncontrolled borders poses the threat of the importation of communicable diseases, including Ebola.

### 1.4 Health system impact

1. **Reduced access to health care (primary and secondary)**
   
   Access to primary and secondary health care has been disrupted due to:
   - Destruction or closure of PHC facilities as a result of armed clashes, insecurity, inability of the health workforce to reach facilities, etc.
   - Overburdening of hospitals and PHC clinics in areas with high numbers of IDPs (e.g. safe parts of Benghazi, Misrata, Tripoli and Sabha).
   - Increasing strain on emergency medical services (including obstetric care) and insufficient capacity of health services (including in staff) to cope with increasing numbers of people requiring emergency health care.
   - Absence of a functional referral system, mechanisms and tools including ambulances, guidelines, etc.
2. Too few health personnel
The number of health personnel is inadequate to cover the rising demands on the health network as a result of:

- Displacement/departure of health personnel from insecure areas, predominantly specialists (anaesthetists, surgeons, obstetricians, etc.).
- High dependency on foreign health personnel (especially in nursing), many of whom left the country following the renewed onset of violence in mid-2014, and have not been replaced.
- The phenomenon of “ghost health personnel”, whereby health workers are on the payroll but do not turn up for work.

3. Tremendous strain on maintaining supplies of medicines
Tackling the severe shortages of supplies is one of the main priorities facing the MoH at all levels of health services. Libya is facing:

- Delays in deliveries of shipments caused by difficulties in sea and air booking.
- Unresolved issues with suppliers (pending payments).
- Unavailability of funding for medical supplies.

These challenges have been exacerbated by the destruction of the main Benghazi warehouse used for storing medical supplies in July 2014, when the warehouse was at its peak accumulation of stocks, leading to de facto destruction of the stock for the entire eastern region. Meanwhile, recent clashes have led to the destruction and/or looting of the warehouses of other hospitals in the east (Al Hawari) and west (Al Zahra). The supply chain to the south is another challenge, with health facilities there inaccessible due to insecurity or road closures.

The current shortages in medicines and supplies include shortages of:

- Surgical and anaesthetic supplies (including trauma and obstetric supplies).
- NCD medicines and supplies (e.g. haemodialysis supplies, neoplastic medicines, hypertension and diabetes medicines).
- Reproductive health supplies, including obstetric supplies and supplies for family planning.
- Communicable disease medicines (e.g. to treat measles, acute respiratory infections, diarrhoeal diseases, HIV and TB).
- Supplies for disabled persons, including prosthetic devices, orthotics, hearing aids.
- Irregularities in supplies of vaccines that are raising fears that vaccines might run short as well.

4. Increased risk of transmission of communicable diseases
The risks posed by communicable diseases have increased recently due to:

- Recent population displacements and the disruption of the PHC network in the main cities.
- Significant risks of transmission of communicable diseases (TB, HIV and potentially Ebola importation) as a result of the thousands of migrants passing through Libya.
• Irregularity of reporting to the National Centre for Disease Control (NCDC) in the last few months.
• Absence of an early warning alert and response system (EWARS).
• A security environment that impedes regular visits of NCDC personnel to areas of concern.

5. Inadequate emergency management capacity and coordination

The newly established crisis committees have not been able to successfully manage the ongoing crisis owing to a lack of skills in crisis management. Moreover, communication between the committees is not well coordinated.
2. Priority health concerns

2.1 Access to health services

Risk assessment
Access to quality health-care services has been greatly diminished, as a result of the proportion of the population who have been affected, the size of the geographical area involved, the number of non-functioning health facilities, and the decreased human resources for health. The above-mentioned factors have affected all regions to differing degrees and since the conflict and the population are constantly moving, these factors are also in constant flux.

A significant increase (of over 300%) in the demand on health services has been observed in some hospitals in Benghazi, Misrata, Al Marj and Tripoli. The principal access problems occur for people in need of emergency surgery, caesarean sections and treatment of chronic diseases.

Priority interventions

1. Improve access to health care
Recognizing the fact that the inherited weaknesses in the PHC network are contributing to deficiencies in delivering the essential package of health services, as well as increasing the burden on hospitals in areas with non-functional or poorly functioning PHC services, the first priority is to strengthen PHC service delivery, including through enhancing the PHC network and strengthening the outreach team strategy. The aim is to establish a strong network of PHC facilities that offer a comprehensive package of essential services, including reproductive health, prevention, screening and management of NCDs, establishment of a functional referral system, and mobile clinics. The services should include provision of adequate support to people with disabilities in terms of promotive, curative and rehabilitation activities to be provided at all levels of the health-care system.

2. Improve quality of surgical care
Including enhancing the current capacity of hospitals to provide trauma and surgical care with the support of specialists from the Arab Medical Association, and boosting the technical capacity of Libyan medical personnel to manage trauma patients with the support of leading institutions in trauma care.

3. Address shortages in health personnel
This is extremely difficult because the Libyan health-care system has for many years been dependent on foreign health workers, of whom there are far fewer now given the security situation. Support by health partners (NGOs, United Nations agencies) has to be envisaged as an important short-term to mid-term response strategy. In the long term, it will be important to find a durable solution to the phenomenon of “ghost health workers”, and improve the capacity of health workers, increase trust in the national health system, and boost the numbers of national specialist (anaesthesia, trauma surgery, obstetrics, etc.) and nursing staff. Training for national staff will be a vital component of such efforts, especially in dealing with trauma and injuries and rehabilitation.
Use of community-based volunteers and promotion of community health workers who can quickly be trained in key life-saving skills such as: immunization, health education and awareness building, antenatal and postnatal care, growth monitoring personal hygiene, breastfeeding practice, etc. In addition, areas that are not covered by static health centres should be mapped and covered by multipurpose outreach teams with defined catchment areas and regular periodical visits to the target sites. However, the community health workers should be supervised by nurses or allied health professionals.

4. Restoring and maintaining the supply chain of medicines
This point is crucial for a functioning Libyan health system, especially with the increasing needs of the health facilities owing to the large numbers of trauma cases and people with untreated chronic diseases.

The supply chain should be restored as priority to the locations affected by the conflict and the areas with a high influx of IDPs.

2.2 Communicable and infectious diseases

Risk assessment
The risk of importing communicable diseases and international disease spread is a major concern because of the weakened surveillance system, recent displacement, and the increased number of migrants passing through the country. An effective EWARS system has not been established yet.

Priority interventions
1. Mitigate the risk of transmission of communicable diseases
Mitigating the risk of transmission of communicable diseases would include a number of immediate measures and activities in order to detect and prevent diseases in a timely and effective manner:

- Strengthen early detection and control of communicable diseases – by establishing a EWARS and strengthening the surveillance system.
- Improve the outreach of preventative measures (vaccines and community health awareness) to cover IDPs, refugees and asylum seekers, in cooperation with other sectors (e.g. WASH) and contingency planning.

2. Improve the capacity to respond to communicable diseases outbreaks
- Strengthen national capacity for emergency response capacity, including through stockpiling of essential supplies.
- Effective coordination among all partners under the guidance of the NCDC.
2.3 Noncommunicable diseases

Risk assessment
Considering the high health burden of NCDs, inadequate supplies of essential medicines, poor diagnostic capacity, the large amount of population displacement, and the potential for further communal conflict, it is expected that mortality and morbidity caused by NCDs will increase from September–October onwards if the current situation persists. Weak PHC services suggest that the public health impact of NCDs may become significant in the future.

Priority interventions
- Support health authorities in ensuring regular supply of essential medicines for NCDs.
- Raise awareness of NCDs among the Libyan population via community-based interventions.
- Provide laboratory and diagnostic supplies.
- Assess population and system needs and capacities for NCD prevention and management.
- Enhance the human resources to deliver care for NCDs at all levels of the health system.

2.4 Mental health

Risk assessment
The percentage of the population affected with mental health conditions by the 2011 conflict is very high. The current conflict is expected to further increase the proportion of the population requiring acute psychosocial support. Many people in the conflict zones are likely to be affected by symptoms of distress caused by continuing danger, loss, trauma, and changing or uncertain social conditions. This is aggravated by the insufficient number of health workers in this field in Libya.

A number of programmes and initiatives have been implemented by different partners since 2012. However, little was done to ensure a coordinated approach among all actors involved in providing mental health services at the community and health facility levels. Simultaneously, the recent crisis led to the displacement of many of the personnel engaged in these programmes, leaving many areas with no specialized personnel.

Priority interventions
- Assess the population’s mental health and psychosocial support needs and system’s existing capacities.
- Improve coordination among actors working in mental health.
- Support the authorities in integrating mental health and substance use services at the community and PHC levels.
• Support capacity building of health professionals to deliver evidence-based interventions for priority mental and substance use disorders.
• Support the national authorities to enhance access to evidence-based psychosocial interventions.
• Ensure a regular supply of essential psychotropic medicines.

2.5 Reproductive and maternal health

Risk assessment
Given the large number of IDPs, the closure of Al Jomhuria Hospital in Benghazi, and access restrictions in conflict zones, reproductive health services have been markedly affected. Information about sexual health is very limited, but increases in HIV and other sexually transmitted diseases are likely.

Concerns include lack of referral and access to basic and comprehensive obstetric care (including emergency obstetric care and family planning), prevention and management of the consequences of sexual violence, reducing the transmission of HIV, and treatment of sexually transmitted infections.

Priority interventions
• Ensure that the Minimal Initial Service Package for reproductive and maternal health care is available at primary and secondary health-care facilities.
• Enhance the outreach of reproductive health services by setting up outreach services.
• Support the establishment of reliable and implementable sexual and gender-based violence guidelines and measures.
• Support health facilities with obstetric kits and other necessary medical supplies.

2.6 Infant and child health

Risk assessment
New waves of displacement and disruption of PHC, including vaccination activities in some areas, has increased the possibility of outbreaks of diseases such as measles and polio. A particular group of interest are the refugees and asylum seekers among whom reports indicate that unregistered children have no access to Expanded Programme on Immunization (EPI) services. There is also a concern about stocks of certain vaccines due to irregular electricity and supplies.
Priority interventions
- Strengthen EPI to cover IDPs, refugees and asylum seekers.
- Implement catch-up vaccination campaigns by the NCDC where and when needed.

2.7 Technological hazards, including nuclear and chemical spills

Risk assessment
The chemical munitions depot in Libya has not been completely destroyed, and there are fears that such munitions will be used. The stockpiles contain mustard gas among other dangerous substances. Moreover, large oil spills and fires have been utilized recently as measures in the fighting.

Priority interventions
- Enhance vigilance among health-care workers for early symptoms of exposure to chemical intoxication.
- Support health authorities in undertaking relevant preparedness measures.
- Support the NCDC to implement the International Health Regulations (2005).

2.8 Health system development

Risk assessment
While emergency response coordination and implementation must be put in place in the short term, maintaining the long-term goal of comprehensive development of the health system is important for the recovery and rehabilitation period.

Health system revision and development started in 2012 with a number of assessments and suggested modalities to improve quality of health delivery in Libya. However, the repeated security threats and instability have not permitted the smooth implementation of the planned interventions.

Priority interventions
1. Enhance emergency management capacity and coordination
It is essential to improve the readiness of Libyan health professionals to respond to current and future emergencies, especially since the security environment impedes direct support from international humanitarian professionals. Different vulnerabilities, including disabilities, in emergency management must be well covered.
2. Advocate with the authorities to mobilize more resources for health (from domestic and external sources) and ensure their efficient use

In times of crisis, responding to the increased demands on health services requires mobilizing more resources for health. The challenges related to limited fiscal space – imposed by decreasing public revenues exaggerated in turn by reduced oil prices – calls for reprioritizing health in the allocation of public resources, as well as tapping into external resources and using them efficiently to enhance access and cover part of the health costs.

2.9 Environmental health

The management of waste, including dangerous medical waste, was poor even before the conflict began, and has worsened since. There is a serious risk that the population will be exposed to infection, toxic effects, injuries and pollution as a result.

It is difficult to assess the degree of environmental contamination that has occurred during the conflict, and support is needed to evaluate the public health impact of the conflict on the environment. Enhanced coordination with actors working in the water, hygiene and sanitation sectors to implement measures to prevent, detect and respond to environmental pollution and to minimize the environmental impact of emergency response measures, will be important.
Annex 1

WHO recommended case definitions

**Acute diarrhoea**
Passage of three or more loose stools in the past 24 hours with or without dehydration.

**Suspected cholera**
In an area where cholera is not known to be present:
- a person aged > 5 years with severe dehydration or death from acute watery diarrhoea with or without vomiting.

In an area where there is a cholera outbreak:
- a person aged > 5 years with acute watery diarrhoea with or without vomiting.

To confirm a case of cholera:
- isolation of *Vibrio cholerae* O1 or O139 from a diarrhoeal stool sample.

**Bloody diarrhoea**
Acute diarrhoea with visible blood in the stool.

To confirm a case of epidemic bacillary dysentery:
- take a stool specimen for culture and blood for serology;
- isolation of *Shigella dysenteriae* type 1.

**Acute flaccid paralysis (suspected poliomyelitis)**
Acute flaccid paralysis in a child aged < 15 years, including Guillain–Barré syndrome, or any acute paralytic illness in a person of any age in whom poliomyelitis is suspected.

**Acute haemorrhagic fever syndrome**
Acute onset of fever (duration of less than 3 weeks) and any of the following:
- haemorrhagic or purpuric rash;
- vomiting with blood;
- cough with blood;
- blood in stools;
- epistaxis; or
- other haemorrhagic symptoms.

**Suspected Ebola or Marburg cases for routine surveillance**
Illness with onset of fever and no response to treatment for usual causes of fever in the area, and at least one of the following signs: bloody diarrhoea, bleeding from gums, bleeding into skin (purpura), bleeding into eyes and urine.
Confirmed Ebola or Marburg cases for routine surveillance
A suspected case with laboratory confirmation (positive IgM antibody, positive PCR or viral isolation)

Acute jaundice syndrome
Illness with acute onset of jaundice and absence of any known precipitating factors and/or fever.

Acute lower respiratory tract infections/pneumonia
- In children aged less than five years: cough or difficulty breathing; and
- In infants aged 2 months to 1 year: breathing 50 or more times per minute
- In children aged 1 to 5 years:
  - breathing 40 or more times per minute; and
  - no chest in-drawing, no stridor, no general danger signs.

Severe pneumonia
Cough or difficulty breathing and one or more of the following:
- inability to drink or breastfeed;
- severe vomiting;
- convulsions, lethargy or unconsciousness; or
- chest in-drawing or stridor in an otherwise calm child.

Acute viral hepatitis (A or E)
Any person with discrete onset of an acute illness with signs or symptoms consistent with acute viral hepatitis typically including fever, acute jaundice, nausea, dark urine, anorexia, malaise, extreme fatigue, and right upper quadrant tenderness and/or elevated serum aminotransferase levels (ALTs) (> 2.5 times the upper limit of normal, as defined by the performing laboratory).

Malaria
Person with current fever or history of fever within the past 48 hours (with or without other symptoms such as nausea, vomiting and diarrhoea, headache, back pain, chills, muscle pain) with positive laboratory test for malaria parasites (blood film, thick or thin smear) or rapid diagnostic test.

In children
Uncomplicated malaria:
- fever and no general danger signs such as lethargy or unconsciousness, convulsions, or inability to eat or drink. Where possible, confirm malaria with laboratory test.

Severe malaria:
- fever and general danger signs (lethargy or unconsciousness, convulsions, or inability to eat or drink).
Measles
Fever and maculopapular rash (i.e. non-vesicular) with:
  • cough and coryza (i.e. runny nose); or
  • conjunctivitis (i.e. red eyes); or
  • any person in whom a clinical health worker suspects measles infection.

To confirm a case of measles:
  • presence of measles-specific IgM antibodies.

Meningitis
Suspected case:
  • sudden onset of fever (> 38.5 °C) with stiff neck;
  • in patients aged < 12 months, fever accompanied by a bulging fontanelle.

Probable case of bacterial meningitis:
  • suspected case of acute meningitis, as defined above, with turbid cerebrospinal fluid.

Probable case of meningococcal meningitis:
  • suspected case of meningitis, as defined above and Gram stain showing Gram-negative diplococcus; or
  • ongoing epidemic or petechial or purpurral rash.

Confirmed case of meningococcal meningitis:
  • suspected or probable case, as defined above, with either positive CSF antigen detection for *Neisseria meningitidis* or positive CSF culture or blood with identification of *N. meningitidis*.

Tetanus
Adult tetanus:
Either of the following signs 3–21 days following an injury or wound:
  • trismus of the facial muscles or risus sardonicus;
  • painful muscular contractions.

Neonatal tetanus:
Any neonate with normal ability to suck and cry during the first 2 days of life who, between day 3 and day 28, cannot suck normally, or any neonate who becomes stiff or has spasms or both.

Unexplained fever
Fever (body temperature > 38.5 °C) for > 48 hours and without other known etiology.

Unexplained cluster of health events
An aggregation of cases with similar symptoms and signs of unknown cause that are closely grouped in time and/or place.
### Annex 2

#### Indicators for priority emergency response activities

<table>
<thead>
<tr>
<th>Code</th>
<th>Sub-Domain</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-C.1</td>
<td>H General clinical services &amp; essential trauma care</td>
<td>Number of outpatient consultations per person per year (attendance rate or consultation rate)</td>
<td>Proxy indicator for accessibility and utilization of health services that may reflect the quality of services. It does not measure the coverage of this service, but the average number of visits in a defined population.</td>
</tr>
<tr>
<td>H-A.1.a</td>
<td>H General clinical services &amp; essential trauma care</td>
<td>Number of functional basic health units/10 000 population</td>
<td>Proxy indicator of geographical accessibility, and of equity in availability of health facilities across different administrative units.</td>
</tr>
<tr>
<td>H-A.1.b</td>
<td>H General clinical services &amp; essential trauma care</td>
<td>Number of functional health centres/50 000 population</td>
<td>Proxy indicator of geographical accessibility, and of equity in availability of health facilities across different administrative units.</td>
</tr>
<tr>
<td>H-A.1.c</td>
<td>H General clinical services &amp; essential trauma care</td>
<td>Number of functional district-rural hospitals/250 000 population</td>
<td>Proxy indicator of geographical accessibility, and of equity in availability of health facilities across different administrative units.</td>
</tr>
<tr>
<td>H-A.9a</td>
<td>H General clinical services &amp; essential trauma care</td>
<td>Number and percentage of non-functional health facilities</td>
<td>Indicator of the consequence of the crisis on the availability of health services.</td>
</tr>
<tr>
<td>H-A.9b</td>
<td>H General clinical services &amp; essential trauma care</td>
<td>Number and percentage of health facilities supported by humanitarian organizations</td>
<td>Indicator of support by Health Cluster partners besides MoH to the health system; in a very disrupted health system can be a proxy for functional health facilities/services as non-supported health facilities have stopped functioning</td>
</tr>
<tr>
<td>H-A.5</td>
<td>H General clinical services &amp; essential trauma care</td>
<td>Number of inpatient beds per 10 000 population</td>
<td>Indicator for the availability of hospital beds across crisis areas and proxy indicator of equity in the allocation of resources.</td>
</tr>
<tr>
<td>H-A.7</td>
<td>H General clinical services &amp; essential trauma care</td>
<td>Number of health workers per 10 000 population</td>
<td>Key indicator to monitor the availability of health workers. It can serve as a proxy to monitor equity in the allocation of resources by humanitarian actors across different groups within the humanitarian case load and/or crisis affected population versus local populations.</td>
</tr>
<tr>
<td>H-A.8</td>
<td>H General clinical services &amp; essential trauma care</td>
<td>Number of community health workers per 10 000 population</td>
<td>Indicator monitoring the availability of human resources vital to the delivery of community-based interventions.</td>
</tr>
<tr>
<td>H-C.2</td>
<td>H General clinical services &amp; essential trauma care</td>
<td>Number of consultations per clinician per day</td>
<td>Measure of the workload and proxy indicator of the quality of care.</td>
</tr>
<tr>
<td>H-A.9</td>
<td>H General clinical services &amp; essential trauma care</td>
<td>Number and percentage of functional health facilities providing selected relevant services</td>
<td>Proxy indicator of the physical availability and geographical accessibility of selected services relevant to the local context.</td>
</tr>
<tr>
<td>H-C.3</td>
<td>H5 Non communicable diseases and mental health; H6 Environmental Health</td>
<td>Coverage of measles vaccination (%)</td>
<td>Measles coverage refers to the percentage of children who have received at least one dose of measles-containing vaccine in a given year. This indicator is used for estimating the vaccine coverage of the total EPI strategy. To avoid overestimation, measles vaccination coverage is often used as a proxy since it is usually lower than DPT3 coverage.</td>
</tr>
<tr>
<td>H-C.4</td>
<td>H2 Child health</td>
<td>Coverage of DTP3 in &lt; 1 year-olds (%)</td>
<td>Indicator used for estimating the vaccine coverage of the total EPI strategy. To avoid overestimation, measles vaccination coverage is often used as a proxy since it is usually lower than DPT3 coverage.</td>
</tr>
</tbody>
</table>

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</thead>
<tbody>
<tr>
<td>H-R.3</td>
<td>H3 Communicable diseases;</td>
<td>Case fatality ratio for the most common diseases</td>
<td>Probability of dying as a result of a given disease. Is a result of a mixture of disease severity and quality of health care.</td>
</tr>
<tr>
<td></td>
<td>H5 Non communicable diseases and mental health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H-A.2a</td>
<td>H4.2 Maternal and newborn care</td>
<td>Number of functional health facility with basic emergency obstetric care (BEmOC) per 500 000 population</td>
<td>Proxy indicator for the physical availability and geographical accessibility of emergency obstetric services and their distribution across districts. An imbalance between the availability of BEmOC and comprehensive emergency obstetric care (CEmOC) (with too little BEmOC) is often observed.</td>
</tr>
<tr>
<td>H-A.2</td>
<td>H4.2 Maternal and newborn care</td>
<td>Number of functional health facilities with CEmOC per 500 000 population</td>
<td>Proxy indicator for the physical availability and geographical accessibility of emergency obstetric services and their distribution across districts in the affected areas. An imbalance between the availability of BEmOC and CEmOC (with too little BEmOC) is often observed.</td>
</tr>
<tr>
<td>H-C.5</td>
<td>H4.2 Maternal and newborn care</td>
<td>Percentage of births assisted by a skilled attendant</td>
<td>Proxy measure for the utilization rate of obstetrics services in health facilities and in communities where village-trained midwives are operating. It is a measure of a health system’s ability to provide adequate care for pregnant women during labour and delivery.</td>
</tr>
<tr>
<td>H-C.6</td>
<td>H4.2 Maternal and newborn care</td>
<td>Percentage of deliveries by caesarean section</td>
<td>The proportion of all deliveries by caesarean section in a geographical area is a measure of access to and use of common obstetric interventions for averting maternal and neonatal deaths and for preventing complications such as obstetric fistula. Of all the procedures used to treat major obstetric complications, caesarean section is one of the commonest, and reporting is relatively reliable.</td>
</tr>
<tr>
<td>H-A.6</td>
<td>H4.3 Sexual violence</td>
<td>Percentage of functional health facilities with clinical management of rape survivor services</td>
<td>Key indicator to measure the allocation of resources and the availability of services to address the consequences of sexual violence.</td>
</tr>
</tbody>
</table>
### Annex 3

**Heatmap of health risks in the current crisis**

<table>
<thead>
<tr>
<th>Public health risks</th>
<th>Heat matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disruption of health supplies</td>
<td></td>
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<tr>
<td>Overload of health services</td>
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<tr>
<td>Trauma and injuries</td>
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<tr>
<td>Maternal mortality</td>
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<tr>
<td>Mental health disorders</td>
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<tr>
<td>Neonatal mortality</td>
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<tr>
<td>Complications of NCDs</td>
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<tr>
<td>Acute respiratory infections</td>
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<tr>
<td>Ebola and polio</td>
<td></td>
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<tr>
<td>Severe acute malnutrition</td>
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<tr>
<td>Chemical hazards</td>
<td></td>
</tr>
</tbody>
</table>

**Legend**

- **Very high**
- **High**
- **Moderate**
- **Low**