Conflict and humanitarian crisis in Iraq

Public health risk assessment and interventions

24 October 2014

HQ/PEC/ERM/SCT/2014.4/PHRA

Photo: WHO/Iraq/A. Zouiten

Contents

Acronyms and abbreviations

AOG	Armed opposition group
CCCM	Camp Coordination and Camp Management Cluster
IDP	Internally displaced person
ISF	Iraqi Security Forces
ISIL	Islamic State of Iraq and the Levant
KR-I	Kurdistan Region in Iraq
KRG-I	Kurdistan Region Government in Iraq
MOH	Ministry of health
NGO	Nongovernmental organization
OCHA	Office for the Coordination of Humanitarian Affairs
PHC	Primary health care
PTSD	Post-traumatic stress disorder
SGBV	Sexual and gender-based violence
STI	Sexually-transmitted infection
UNAMI	United Nations Assistance Mission for Iraq
UNHCR	Office of the United Nations High Commissioner for Refugees
WASH	Water, Sanitation and Hygiene Cluster
WHO	World Health Organization

Preface

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

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

Public health threats represent a significant challenge to those 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 helps in guiding needs assessments and the orientation of emergency health response strategies.

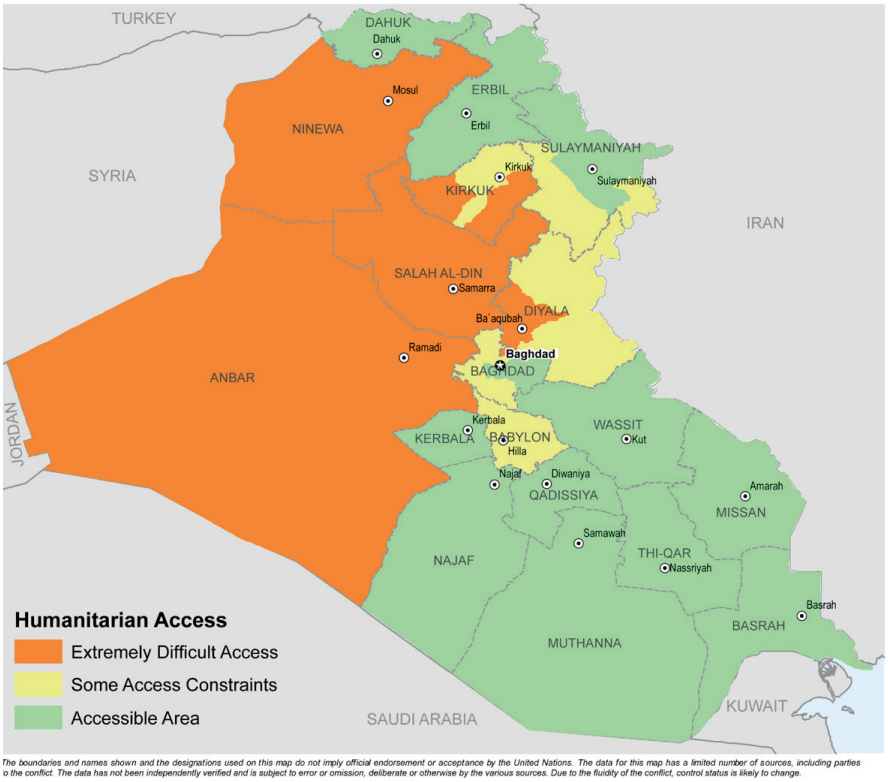
Executive summary

Iraq has a long history of social unrest and population displacement dating back to the early 1990s. Several decades of conflict, which has undermined socioeconomic development and resulted in degradation of national infrastructure coupled with a recent resurgence of violence in the region, means that the country now faces a complex emergency situation and humanitarian crisis.

As a result of Islamic State of Iraq and the Levant (ISIL) offensives and the Anbar crisis, more than 1.8 million Iraqi people have been newly displaced since January 2014. The security situation in Anbar, Diyala, Ninewa and Salah-al Din remains volatile and unpredictable, rendering humanitarian access to these regions highly problematic (see figure 1.1 below). In the north-eastern parts of the country, host communities are facing difficulties in assisting both the newly displaced Iraqi population and over 213 000 Syrian refugees who have settled in this region over the last two years. Population displacement on this scale is severely testing the capacity and resilience of existing public services, including health systems.

The conflict situation continues to evolve as new military offensives cause further eruptions of violence across the region. Further displacements may result as a consequence.

Figure 1.1 Humanitarian access as of 9 September 2014



Source: Office for the Coordination of Humanitarian Affairs, 2014

Crisis impact

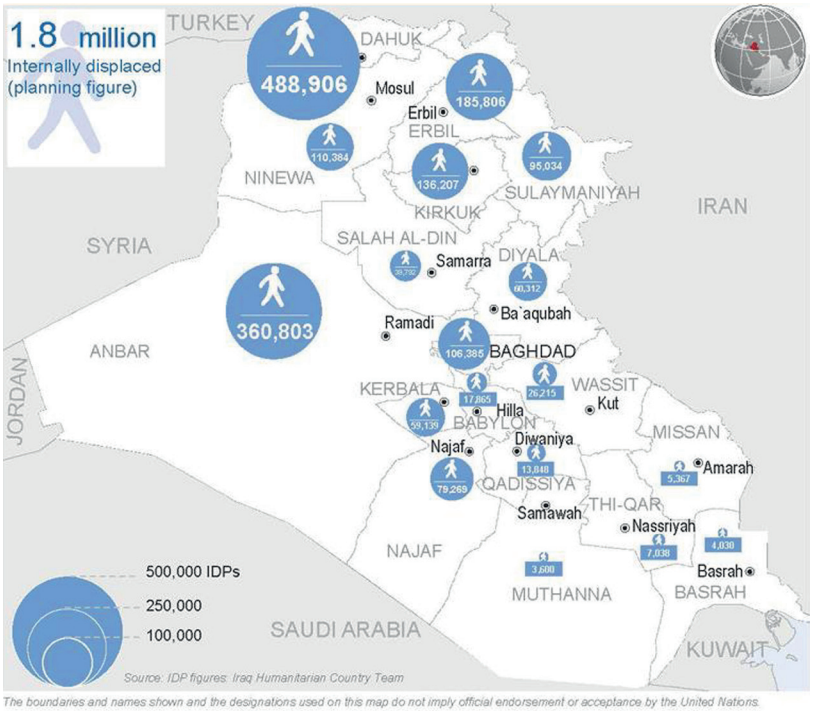
Displacement

There have been four distinct waves of internal population displacement since the start of 2014, in January, June, August and October. An estimated 500 000 people fled Mosul on 10 June alone, including a number of Palestinians who, already stateless, have been subjected to secondary displacement.

Those who were displaced earlier on (i.e. in the early waves of displacement occurring in January and June) have had more opportunities to find accommodation within their host communities, staying either with friends or family, in rented houses or hotels. However, the more recently displaced have been forced to settle in either public facilities, makeshift shelters or other communal living arrangements which makes their situation extremely precarious, especially as the winter season approaches.

Many of Iraq's 1.8 million newly displaced persons (IDPs) are now spread across approximately 26 IDP camps and over 1700 informal IDP sites (see map below) and face an uncertain future. The impact of the new crisis on the 215 000 Syrian refugees hosted in 11 camps in Iraq is not clear at the current time but their situation is being monitored closely by the United Nations Assistance Mission for Iraq (UNAMI and UNHCR). At least 300 000 people, mainly from Yazidi families, are known to have moved into the Sinjar mountains, straining yet further the resources of the host communities.

Figure 1.2 Displacement by destination 14 September 2014



Source: Office for the Coordination of Humanitarian Affairs, 2014

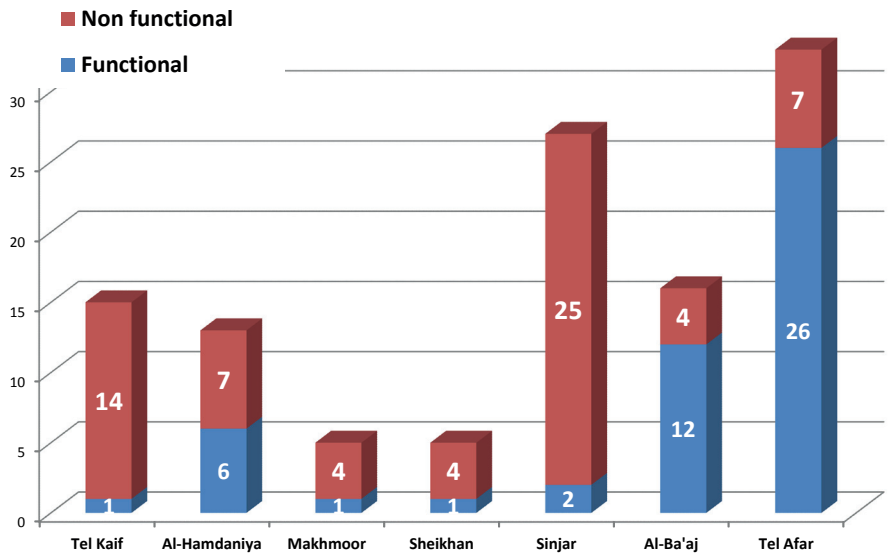
Health System impacts

In many areas, the health infrastructure and access to health services have been disrupted due to the conflict. In the security-compromised governorates of Anbar, Diyala, Kirkuk, Ninewa and Salah-al Din a number of health facilities have been damaged by bombing and shelling.

In active conflict zones, service delivery problems caused by damaged infrastructure are compounded by interruptions in the supply of medicines and by fuel shortages which have contributed to the disruption of electricity and water supplies to hospitals, health centres and vaccine stores. Staff shortages are also adding to the difficulties in providing adequate health care. Around 50% of the specialized health care staff has left Anbar, Dyiala, Ninewa and Salah-al Din since June 2014.

At present, many health facilities across Anbar, Diyala, Kirkuk, Ninewa and Salah-al-Din are experiencing frequent shortages of staff, electricity, medical supplies and/or water. Since July, the routine immunization programme has been severely disrupted. An estimated 80% of health facilities are not functional in the conflict-affected area of Sinjar due to a combination of a lack of health personnel and medical supplies (see figure 1.3).

Figure 1.3 Status of functioning health facilities in Ninewa Governorate



Source: WHO Regional Office for Iraq

Immediate priorities for health response

In terms of health impacts, Anbar, Dahuk, Diyala, Erbil, Kirkuk, Ninewa, Salah-al Din and Sulaymaniyah are considered to be the worst affected governorates. Populations considered to be most at risk are children under five years of age, women who are pregnant or of childbearing age, people vulnerable to violence and sexual or gender-based violence (SGBV) and the elderly, especially those from single households.

Health sector priorities

Priority interventions include the following:

a. Restore emergency and essential primary and secondary health services, including medical referral services and ensure availability of life-saving emergency services for the affected populations
b. Address trauma and emergency surgical conditions (abdominal and others).
c. Provide reproductive health care, especially safe deliveries, obstetric and neonatal care and care for victims of SGBV.
d. Ensure continuity of treatment of chronic conditions and noncommunicable diseases.
e. Procure, store and distribute life-saving and essential medicines and supplies.
f. Provision of safe drinking water, adequate sanitation and hygiene facilities.
g. Strengthen disease surveillance and early warning response systems for outbreak-prone diseases.
h. Strengthen preparedness for, prevention and management of, the most common infectious diseases (diarrhoeal diseases, respiratory tract infections), and prepare for the upcoming winter season.
i. Ensure availability of integrated vaccination services, with a focus on measles and polio.
j. Address child health, including referral and care of children with medical complications of severe acute malnutrition.
k. Ensure wider provision of emergency mental health and psychosocial care.
l. Promote infection control in health-care facilities, including safe transfusion and medical waste management; enhance coordination among health facilities.
m. Disseminate public health risk communications to the public.
n. Provide protection for health-care workers and health facilities in conflict zones
o. Ensure that people have access to the minimum set of HIV prevention, treatment and care services; ensure continuity of treatment for tuberculosis (TB) in an integrated way.
p. Ensure appropriate access, joint planning and an integrated approach to the response by working with other priority clusters, in particular the Protection, Shelter, Water, Sanitation and Hygiene (WASH) and Camp Coordination and Camp Management (CCCM) clusters.

Non-health sector priorities impacting health

Priority interventions include the following:

a. Provision of sufficient and safe drinking water.
b. Provision of adequate sanitation and hygiene facilities.
c. Provision of safe food, including complementary food for children under two years of age.
d. Provision of adequately-sized and ventilated shelter and housing.

1. Background and risk factors

1.1 Country information

Recent political history: In October 2005, the Iraqi people approved a new constitution and in December 2005 duly elected Iraq's first full-term constitutional government in nearly a half century. In January 2009 and again in April 2013, elections for provincial councils were held in all but four of the country's governorates, the Kirkuk Governorate and the three governorates comprising the Kurdistan Region Government in Iraq (KRG-I). A national legislative election was held in March 2010 and the new government was approved in December 2010.

Demographic data: Iraq's population tripled between 1970 and 2010, from just over 10 million to around 33 million, and according to United Nations Population Division estimates, is set to quadruple to almost 50 million by 2030. The Iraqi population is relatively young, with over a third of the population aged under 15 years (see Box 1.1). Approximately two thirds (66%) of the population live in urban areas, although the proportion varies significantly across the regions. Baghdad has the highest urban population (93%), whereas Diyala has the highest rural population (56%). Although fertility rates have decreased over the past decade, fertility in Iraq remains high, with a national average total fertility rate of 4.3 (see Box 1.1).

Box 1.1 Democraphic data: key demographic indicators

Total population (2011)	**33 227 000**
Population growth rate % per year (2011)	**3.5**
Crude birth rate per 1000 people (2011)	**38.0**
Crude death rate per 1000 people (2011)	**4.2**
Life expectansy at birth years (2010)	**72.7**
Fertility rate number of births per woman (2010)	**4.3**
Urban population % of total (2010)	**66.0**

Source: Democraphic, social and health indicators for countries of the Eastern Mediterranean 2012. WHO Regional Office for Eastern Mediterranean

Box 1.2 Population age distribution 2014 (estimated)

Age group	Both sexes No (% of total)	Males	Females
All ages	**32 585 692** (100.0)	**16 503 474**	**16 082 218**
Under 15 years	**11 971 659** (36.7)	**6 093 069**	**5 878 590**
15 - 24 years	**6 379 414** (19.6)	**3 237 212**	**3 142 202**
25 - 54 years	**11 818 346** (36.3)	**6 032 379**	**5 785 967**
55 - 64 years	**1 366 635** (3.2)	**652 973**	**713 662**
Over 65 years	**1 049 638** (3.2)	**487 841**	**561 797**

Source: CIA Factbook

Box 1.3

Languages	
Arabic	(Official language)
Kurdish	(Official language)
Turkmen[1]	(a Turkish dialect)
Assyrian[1]	(Neo-Aramaic)
Armenian	

[1]Official language in areas where speakers constitute the majority of the population

Box 1.4

Ethinc groups	
Arab	**75-80%**
Kurdish	**15 - 20%**
Turcoman, Assyrian or other	**5%**

Box 1.5

Religions
Muslim 99% (60-65% Shia, 32-37% Sunni)
Christian 0.8%
Others 2% (Hindu, Buddhis, Jewish, folk religion)

Source: WHO Country data

Iraq is prone to various natural hazards, including flooding, heat waves and high winds. There is also a significant earthquake risk in the north-western part of the country. In addition, the country faces the threat of infectious disease outbreaks (such as cholera and measles), which along with social unrest continues to adversely impact Iraq's potential for economic development.

1.2 Crisis impact

Iraq has a history of social unrest and population displacement that dates back to the early 1990s. Several decades of conflict, which has undermined socioeconomic development and resulted in degradation of national infrastructure and health systems coupled with a recent resurgence of violence in the region, means that the country now faces a complex emergency situation and humanitarian crisis.

As a result of Islamic State of Iraq and the Levant (ISIL) offensives and the Anbar crisis, some 1.8 million Iraqis have been newly displaced from their homes since January of this year (see figure 1.2). These displacements took place in four main waves, in January, June, August and most recently in October 2014. It is estimated that some 500 000 Iraqis fled their homes in Mosul on 10 June alone, including a number of Palestinian families who were already stateless and have been subjected to secondary displacement. Those leaving Mosul have tended to move either from the west bank to the east bank of the city, to other parts of the Ninewa Governorate, or further north to the Kurdistan Region. Movement to the latter region has since been restricted as the KRG-I will only permit entry to those with family or a sponsor already residing in the Kurdistan Region.

Many of Iraq's 1.8 million internally displaced persons (IDPs) are residing in the 26 IDP camps and 1700 informal IDP sites that have been set up across the country (see figure 1.2). Those that were displaced earlier in the crisis (January and June) have been more likely to find accommodation within host communities, whereas the more recently displaced (August) have been forced to settle in public facilities and makeshift shelters, or make other communal living arrangements. For example, up until relatively recently, almost 80% of the displaced population who arrived in the Kurdistan Region have been housed within host communities, spread among friends and families, rented houses and hotels. The remaining 20% are living in public spaces and houses under construction and are in urgent need of food, water, shelter and access to health care and other non-food items. Their situation is becoming increasingly precarious as savings run out and as winter approaches.

The scale of the recent displacement places a severe burden on public services, including the health system, and comes on top of earlier widespread displacement in the region, largely as a consequence of the Syrian conflict. Over the past few years, close to a quarter of a million (215 000 million) Syrians have left their homes and have settled in northern parts of Iraq (see figure 1.4). It is believed that at least 300 000 people, mainly Yazidis, have moved into the Sinjar mountains.

Ongoing assessments indicate that displaced families are continuing to move, often on a daily basis. IDP settlements appear to be poorly organized and there are reports that some individuals are deliberately concealing their displacement status. These factors make it extremely difficult to establish needs. Moreover, the situation is constantly changing: new military offensives and eruptions of violence make further waves of displacement a likely scenario. In addition to the challenges created by large numbers of IDPs, the volatile security situation in Anbar, Diyala, Ninewa and Salah-al Din is making humanitarian access highly problematic. The lack of humanitarian access

to areas controlled by armed opposition groups is rendering upwards of two million people, including children, extremely vulnerable to public health risks (see figure 1.3). Those considered to be most at risk include children under five years of age, women who are pregnant or of child-bearing age, people vulnerable to violence and sexual or gender-based violence (SGBV) as well as the elderly, especially those from single households.

1.3 Current health situation


Photo: WHO/ Saad Al-Dahwi

Across Iraq, health system functioning and access to health services have been disrupted due to the conflict in Anbar, Dahuk , Diyala, Erbil, Kirkuk, Ninewa, Salah-al Din and Sulaymaniyah are currently considered to be the worst affected governorates in terms of health needs. In the security compromised governorates (Anbar, Diyala, Kirkuk, Ninewa and Salah-al Din) a number of health facilities have been damaged by bombing and shelling; substantial damage to three health facilities has been reported. Casualties among civilians and the Iraqi Security Forces (ISF) running into the hundreds had been reported in these areas; the highest numbers of casualties appear to come from the Ninewa Governorate and its capital Mosul, and the parts of the Diyala and Salah-al Din Governorates that lie towards the north of Baghdad.

In addition to infrastructure damage, health-care provision is being compromised by shortages of staff, fuel and electricity, medicines and other medical supplies, and clean water. It is reported that around 50% of the specialized health personnel have left Anbar, Dyiala, Ninewa and Salah-al Din since June 2014 and that 80% of health facilities in the conflict-affected area of Sinjar are not functioning due to a combination of a lack of health personnel and medical supplies (figure 1.3). From July onwards, the routine vaccination programme has been severely affected by the conflict.

Situation in Mosul

Most of the 14 hospitals in the Mosul region (nine within the city itself and five outside Mosul), are fully functional with the exception of one in Mosul (Ibn Sina Hospital) – which was damaged by a strong explosion but still has two functioning units (paediatrics and dialysis unit) –and one outside Mosul. The main food contractor for the hospitals has left Mosul, so the local community is donating food for patients in hospitals. All primary health care centres in Mosul are functioning, although the staffing levels are down to 30–50%. At the time of writing, there are no reported shortages of medicines in Mosul.

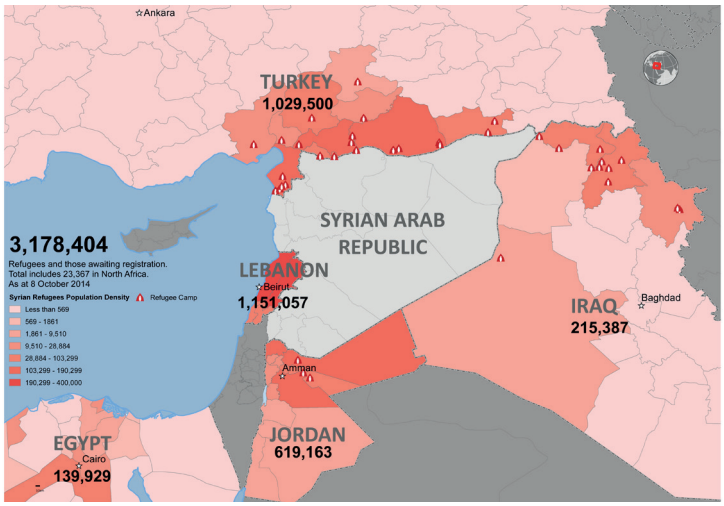
However, the lack of security in Mosul and the surrounding areas is making it difficult for the population to access basic supplies and health services to meet their needs. These problems are compounded by the lack of humanitarian space and secure access to conduct needs assessments and provide medical support. Shortages in fuel are anticipated to have a critical impact on the functionality of health facilities and the vaccination cold chain.

Situation in the Kurdistan Region of Iraq

In north-eastern parts of Iraq, the health system has been struggling to cope with the pressures caused by the arrival of almost a quarter of a million Syrian refugees over the past two years. These pressures are now being compounded by the additional influx of IDPs, many of whom originate from the north-western parts of the Ninewa Governorate and who fled from armed opposition forces when they took control of Tal Afar.

While health indicators for the Kurdistan Region are generally better than those for the rest of Iraq, catering for an additional 550 000 people (Syrian refugees and new IDPs) is stretching the capacity of the region's hospitals and primary health care facilities well beyond their capacity. This is likely to translate into an increased threat of infectious disease outbreaks (due to the strain placed housing, water supply and sanitation services and the disruption to routine immunization programmes), greater maternal and child mortality and morbidity (due to reduced access to basic health care, immunization and emergency obstetric care) and compromised care for those with chronic diseases, disabilities and mental health problems.

Figure 1.4 Destination of Syrian refugees, as of 8 October 2014



Source: Office of the United Nations High Commissioner for Refugees, 2014

2. Priority health concerns

As the conflict situation is still evolving, the full extent of the humanitarian crisis in Iraq has yet to be seen. Health concerns are thus also in a state of flux and the situation demands continual reassessment. What is clear however, is that the country faces complex and multiple threats to public health as a result of a combination of damage to the physical infrastructure of health facilities (hospitals, primary health care clinics), reduced numbers of health workers (doctors, nurses, paramedics), disruptions to supply chains and large-scale displacement of the civilian population. The situation is especially acute in and around Mosul and other security-compromised areas and in the Kurdistan Region to the north of the country which is host to large numbers of displaced persons.

2.1 Access to health services

Risk assessment

Health system functioning has been severely disrupted across much of the country due to the ongoing conflict. Access to health services is thus problematic for many Iraqis, both in the government- controlled areas and in the AOG-controlled areas where international aid organizations are working to deliver essential services to the civilian population under difficult circumstances. For many, the barriers to access are also financial: many of Iraq's 1.8 million IDPs cannot afford expensive health care as their financial resources and reserves are used up in securing more basic items such food and shelter.

On top of the problems caused by extensive infrastructure damage, many health facilities are struggling to maintain basic service levels due to supply issues. Availability of key health resources, including medicines and medical supplies, have been compromised due to road inaccessibility, particularly in the wake of major disruption to the health supply chain from Baghdad in June. Fuel shortages have also contributed to further disruption in the supply of electricity and water to hospitals, health centres and vaccine stores, particularly in active conflict zones.

Many health facilities across the country are currently experiencing acute shortages of medicines and medical supplies and are no longer able to cope with health needs of the local population, especially in regions that are host to large numbers of IDPs. This is particularly a problem in Anbar, Dahuk, Dyiala, Erbil, Kirkuk, Ninewa, Salah-al Din and Sulaymaniya where supply chain interruptions have been especially frequent . As a result of population displacements, many health-care facilities are having to operate with much reduced staffing levels, as low as 50% in some areas.

In addition to disruptions to basic health-care services, including routine vaccination programmes, the prevailing insecurity and ethnic nature of the crisis is challenging patient referral for chronic conditions, thus further increasing the likelihood of death and long-term disability (see section 2.3: Noncommunicable diseases). Emergency services are also being severely compromised. With the recent escalation in the level of violence, the number of people presenting with wounds and injuries has risen, and now account for the largest proportion of surgical interventions. The management of the injured is further complicated by delays in presenting for care, the limited access to skilled personnel and the lack of appropriate infection control measures or equipment. Complications of untreated injuries, pregnancy and abdominal conditions include death, infections, tetanus and long-term disability.

Priority interventions

In light of the ongoing situation, the functional and structural safety of health facilities remains a priority for the whole country. Interventions should prioritize the provision of primary health care services to the displaced population through primary health care (PHC) centres and mobile clinics with the support of international and national NGOs. The minimum package of services should include both basic curative and preventive health services, as well as emergency obstetric care and care for noncommunicable diseases, disabilities and mental health.

In order to fill the gaps in supplies, health cluster partners need to focus on providing medicines, vaccines, medical supplies, medical equipment to PHC centres and hospitals, as well as disability aid, to areas with a high influx of IDPs and to security-compromised areas. By providing incentives to ministry of health staff, health cluster partners can support overwhelmed health facilities and enhance service delivery to IDPs and host communities.

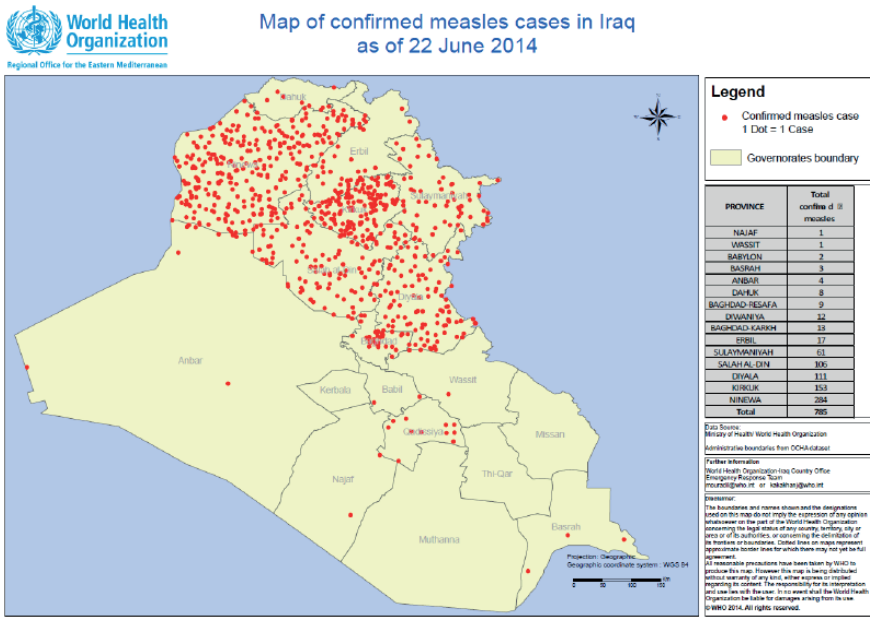
Prioritizing supplies for the functional health facilities and enhancing the outreach of the referral system for secondary and specialized care (e.g. obstetric, trauma, chronic diseases and disabilities) will help ensure emergency management capacity of the health system and will contribute to reducing death and long-term disability. Mass casualty management is another area where capacity needs to be built as a matter of priority.

2.2 Communicable and infectious diseases

Risk assessment

The escalation of fighting in Iraq coupled with large-scale population displacements increases the risk of outbreaks of infectious diseases and presents major challenges for the control of such diseases. Early indications are that the prevalence and incidence of several communicable diseases (e.g. measles, diarrhoea, hepatitis, typhoid) have increased since the onset of the crisis (see figure 2.1).

Figure 2.1 Confirmed measles cases, June 2014



Source: WHO, 2014

Critical health risks of concern to WHO include the spread of measles and other communicable diseases that are spread from person to person through respiratory droplets (such as diphtheria, influenza and pertussis, as well as acute respiratory infections), especially in overcrowded areas where internally-displaced persons are located. Among this group of diseases, measles (endemic in Mosul) is of immediate concern, given the scale of recent outbreaks which occurred in 2008 and 2010 and again in 2014 starting in the north of the country.

Rates of acute respiratory infections (ARIs), already a leading cause of mortality and morbidity among the under-fives in Iraq, are expected to rise as a direct consequence of the current crisis. Low birth weight, malnourished and non-breastfed children and those living in overcrowded conditions are at higher risk of acquiring pneumonia.

Infants of less than six months of age, who are not breastfed have five times the risk of dying from pneumonia than infants who are exclusively breastfed for the first six months of their life. Available data indicate that only a third of Iraqi mothers are able to recognize the early signs and symptoms of respiratory distress.

Polio as re-emerged has public health concern in the country. After 14 years of being polio free, Iraq recorded its first polio case in early 2014 in Baghdad. Since then one further case has been recorded. Both of these new wild polio cases have been linked to the Syrian refugee population. With low levels of routine immunization and high numbers of unvaccinated or under-immunized children, especially in the conflict zones, the region is now vulnerable to a larger outbreak of polio.

Structural damage to water supply and sewerage systems and poor environmental health conditions in overcrowded IDP camps has meant that the incidence of water-related infectious diseases, in particular diarrhoeal diseases, has risen in several parts of the country, especially in the hard-to-reach areas. Pressures on housing, water supply and sanitation have also increased threat of further cholera outbreaks, especially in the Kurdistan Region of Iraq where cholera is endemic and there are high numbers of new IDPs. A large-scale outbreak in 2007 (4696 suspected cases, including 24 deaths) was followed by smaller outbreaks in 2008, 2009 and 2010. So far this year several cholera alerts have been issued in the region but no confirmed cases of cholera have been reported.

Deterioration of hygiene and sanitary situations in temporary shelters and IDP camps also increases the risk of contracting hepatitis (A and E), which is spread by the ingestion of contaminated food and water. The risk of the spread of several other endemic water- and food-borne diseases, including typhoid fever (Salmonella typhi), Crimean Congo haemorrhagic fever and leishmaniasis, is also increased; of these, typhoid is of greatest concern given the country's recent history of outbreaks (in 2007,2008, 2009 and 2010) and the frequent interruptions of electricity and water supplies during the summer months of 2014 which have already resulted in a number of new cases.

The malaria risk is perceived to be relatively low. No indigenous cases have been reported in Iraq since 2009. The last indigenous case due to P. falciparum was reported in 1969, while the last two local cases due to P. vivax were recorded in 2008. Imported malaria cases originate from African and South-East Asian countries, but their numbers are very low and do not exceed several cases a year (11 imported cases were reported in 2011).

In terms of chronic communicable diseases such as tuberculosis (TB) and HIV/AIDS, the primary concern is the public health risk posed by the discontinuation and/or disruption of services and medicines used to manage those with these conditions. After peaking in 2011 (a notification rate of 28 cases per 100 000 population and 9248 reported cases), the incidence of TB had been steadily declining in more recent years as a result of the implementation of a revitalized national tuberculosis programme in 2012. The prevalence of HIV infection remains relatively low in Iraq (at less than 0.1%), with the majority of cases occurring in men and haemophiliacs (of the 269 cases registered between 1986 and 2007, 85% are males and 77% are haemophiliacs who became infected in the early 1980s).

Priority interventions

Interventions to tackle the priority health concerns include sustaining and upgrading immunization programmes, especially for measles. Recent outbreaks, including one in 2014, highlight the need for further vigilance and to boost routine coverage of infants with the measles vaccine through national and subnational supplementary campaigns, with the aim of achieving coverage targets of at least 90% nationwide and 80% in every district.

Currently access to safe drinking water and sanitation is poor, with 21% of households unable to access an improved water source and 16% without proper sanitation. Improving access to clean drinking water and sanitation will require strengthening both inter-sectoral and cross-sectoral coordination (see section 2.7 Environmental health).

Ensuring the sustainability of key infectious disease programmes (e.g. for typhoid, hepatitis A, hepatitis E, Crimean Congo haemorrhagic fever and leishmaniasis), as well as continuity of care for those with TB and HIV infection, is another immediate priority. Rapid identification of those on treatment for TB and HIV infection and prompt resumption of services are vital to ensure continuity of care. In the case of TB, it is crucial to reduce the risk of development and spread of multidrug-resistant tuberculosis (MDR-TB) and extensively drug-resistant tuberculosis (XDRTB). Given that sexual transmission is now the dominant mode of HIV transmission in the country, there is a need to raise awareness about the health risks of unprotected sex.

2.3 Noncommunicable disease

Risk assessment

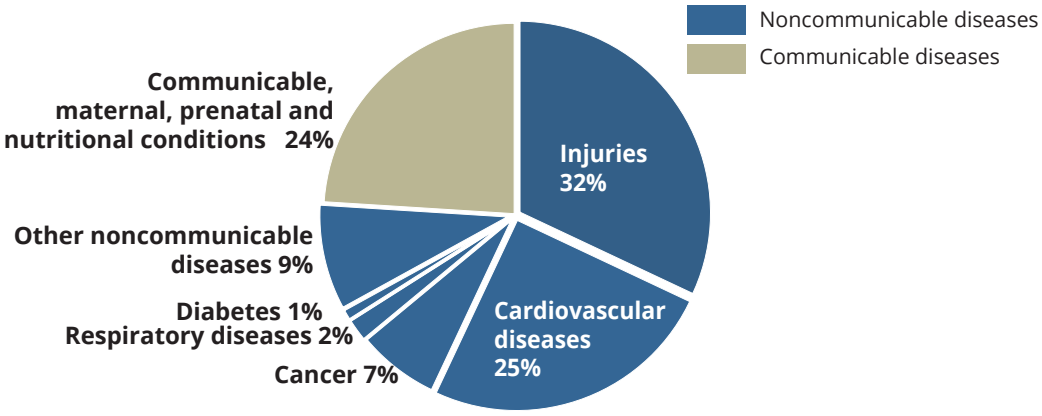
In the current crisis, people suffering from chronic diseases (e.g. diabetes, hypertension) are experiencing reduced access to medications because of disruptions in the supply chains (see section 2.1 Access to health services). Shortages inevitably cause price rises, placing medications beyond the reach of many or at the very least act as a severe drain on family incomes and resources. The regular monitoring of patients suffering from chronic diseases is also being compromised especially in areas with disrupted, non-functional and overburdened health services.

In the absence of routine management, chronic sufferers of the major noncommunicable diseases will experience more severe health problems and are also more likely to die to as a result of their condition. Increases in the incidence of acute myocardial infarction, ischaemic stroke, severe and life-threatening asthma attacks, epilepsy attacks and diabetic complications such as limb gangrene ketoacidosis and blindness are thus likely longer-term consequences of the current crisis.

Priority interventions

Given that unmanaged noncommunicable diseases place a considerable burden on health services, efforts should be focused on emergency treatment of exacerbations of disease (e.g. diabetes, hypertension, stroke), as well as minimizing treatment interruptions.

Figure 2.3 Burden of noncommunicable diseases, mental health and injuries[1], 2011 (% of total deaths, all ages)



Source: Noncommunicable disease country profiles 2011. Iraq. Geneva, World Health Organization, 2011 (http://www.who.int/nmh/countries/irq_en.pdf, accessed 1 July 2013).

2.4 Mental health

Risk assessment

Despite a decade-long active mental health programme, prevalence of mental health disorders remains high in Iraq (12-month prevalence is estimated to be 11%) while service provision remains low (the treatment gap for management of mental health disorders is estimated at 94%). Although Iraq boasts a substantial number of highly competent and skilled psychiatrists, the majority are based in the major urban centres, leaving much of the country without provision. Psychosocial care and support for post-traumatic stress disorders (PTSDs) is especially inadequate.

Six trauma centres have been established: two in Baghdad, one in Mosul, one in Basra, one in Dahuk and one in Diwaniyah.

Priority interventions

Given the already high numbers of individuals with mental health disorders, and an anticipated increase in the incidence of a range of mental health

[1]In 2011, noncommunicable diseases, including heart disease, stroke, cancer, respiratory diseases and diabetes, accounted for 44% of all deaths in Iraq (figure 2.3). Morbidity from these conditions is also significant; the most frequently reported chronic conditions among the higher age groups are high blood pressure (41.5 cases per 1000 population), diabetes (21.8 cases per 1000), joint diseases (18.6 cases per 1000), heart disease (12.0 cases per 1000) and gastrointestinal disease (11.2 cases per 1000), according to the Iraq family health survey for 2006/2007. Immediately prior to the crisis, integration of the management of noncommunicable diseases at primary health care centre level had achieved a near 50% coverage, with a focus on management of hypertension and diabetes.

disorders as a result of the current crisis[2] , continued and rapid development of mental health programmes is a high priority. When developing services, it is important to differentiate between normal psychological distress and moderate or severe mental disorders. Normal psychological distress may be reduced through supporting culturally appropriate mourning and community-self-help and by providing psychological first aid to people in acute distress after an exposure to extreme stressors and other forms of non-clinical psychosocial support. The latter can be made available through programming in different sectors.

Moderate or severe mental disorders require clinical treatment, in addition to psychosocial support. Continued access to care should be assured for people with severe mental disorders.

2.5 Reproductive and sexual health

Risk assessment

The escalation of conflict in Iraq is putting the reproductive health of women at risk. Access to reproductive health services, including obstetric emergency care, is badly affected in conflict areas and also in regions where large numbers of IDPs are placing a heavy burden on existing health services.

Reliable data on reproductive and sexual health are limited, but what data are available suggest that service coverage is patchy. Although the rate of first-visits to antenatal care facilities is relatively high, the percentage of pregnant women who attend for the recommended number of visits (four and above) is still low (29%). The same is true for postnatal coverage (41%)[3]. Prior to 2014, around a third of all births took place outside health-care institutions, yet over a fifth (22%) of deliveries are classed as high risk and in need of advanced medical support[4]. Rates of maternal mortality in Iraq are moderately high but estimates vary widely, from 63 maternal deaths per 100 000 live births[5] to 24 per 100 000 live births[6].

It is anticipated that in the wake of the crisis, the proportion of births taking place outside health-care institutions and without specialist obstetric care will increase, with possible longer-term consequences for maternal and neonatal mortality.

A further concern is a possible rise in the level of sexual and gender-based violence (SGBV)[7], which often occurs in the context of conflict and may be commanded or condoned as a tactic of war. Sexual violence can have multiple physical, psychological and social effects on survivors, their social networks

[2]WHO projects that, on average, in emergency situations the percentage of people with a severe mental disorders (e.g. psychosis, severely disabling presentations of mood and anxiety disorders) increases by 1% over and above the baseline level, and that the percentage of people with mild or moderate mental disorders (most presentations of mood and anxiety disorders) increases by 5-10% above baseline.
[3]Ministry of Health, 2009
[4]See: http://www.who.int/gho/countries/irq.pdf?ua=1
[5] United Nations Maternal Mortality Estimation Inter-Agency Group, 2010
[6] Ministry of Health, 2011
[7] Sexual and gender-based violence includes rape, sexual slavery, forced prostitution, forced pregnancy, enforced sterilization, or any other form of sexual violence against women, men, girls or boys.

and their communities. Sexual and reproductive health consequences include sexually transmitted infections, HIV infection, unwanted pregnancies, unsafe abortions, gynaecological problems and physical injuries. Psychological and mental health consequences include non-pathological distress (such as fear, sadness, anger, self-blame, shame, sadness or guilt), anxiety disorders (including PTSD), depression, medically unexplained somatic complaints, and alcohol and other substance use disorders, as well as suicidal ideation and self-harm. Social consequences include stigma and its sequelae, in particular, social exclusion, discrimination, rejection by family and community, and further poverty.

Priority interventions

Response action in humanitarian emergencies should address "safe pregnancy" with "safe delivery" and ensure uninterrupted access to emergency obstetric care. Recommended priority interventions for victims of sexual and other forms of gender- based violence include medical case management (e.g. prevention and treatment of sexually transmitted infections (STIs) including post-exposure HIV prophylaxis) and provision of community-based psychosocial support.

2.6 Infant and child health

Risk assessment

A large proportion (around 50%) of the Iraqi population is under the age of 20 years. Infants and children under the age of five years in particular are at high risk of repeated episodes of diarrhoeal disease because of unsanitary environmental conditions, unsafe water supply and poor hygiene practices, conditions which have been steadily worsening since the onset of the current crisis. Rates of malnutrition are also high in this age group. According to a survey conducted in 2012[8], acute malnutrition (wasting) is running at 7%, underweight at 8% and chronic malnutrition (stunting) at 22%.

Diarrhoeal and acute respiratory infections, compounded by malnutrition, already account for two thirds of deaths among children under 5 years of age, and the numbers are likely to increase.

Priority interventions

It is important that vulnerable groups, especially young children, pregnant and lactating women, and older persons continue to have access to appropriate and adequate food.

Over and above this, breastfeeding should be supported and actively promoted, in accordance with the inter-agency Operational Guidance on Infant Feeding in Emergencies[9]. Breastfeeding is the single most important protecting factor for reducing child mortality and morbidity, particularly in emergency settings where there is not only a heightened risk of diseases related to lack of safe water, poor sanitation and hygiene but also an influx of breast milk substitutes.

[8] Multiple Indicator Cluster Survey, 2012
[9] http://www.who.int/nutrition/publications/emergencies/operational_guidance/en

In these settings, donations of infant formula and other breast milk substitutes can increase morbidity and mortality in infants and young children and thus should be discouraged and if necessary the targeting, use, procurement and distribution of these products should be strictly controlled.

2.7 Environmental health

Risk assessment

Iraq currently faces major environmental challenges, brought about by a combination of years of war and underinvestment which have eroded the nation's physical infrastructure and vital environmental services such as water supply and sewerage systems. The problems have been compounded by a series of natural disasters, including decades-long drought, desertification and periods of flooding. The Iraqi government has listed environmental services as a priority in its national development plan, in order to meet international treaty obligations and to ensure that its plans for economic and human development include environmental considerations.

Priority interventions

In terms of public health measures, the promotion of safe hygiene practices in the context of water, sanitation and hygiene (WASH) sector-related interventions is the immediate priority. In addition, joint epidemic response planning, vector control programmes and cholera response strategies should highlight and factor in environmental risks.

2.8 Technological hazards

Risk assessment

The ongoing conflict increases the risk of releases of potentially hazardous chemicals into the environment with consequent impacts on health. Possible scenarios include chemical release from damaged factories, warehouses and workshops, and the deliberate release of highly toxic chemicals such as chlorine. In 2007, there were a number of incidents in Iraq in which trucks carrying chlorine cylinders were bombed, releasing chlorine gas into the immediate environment.

The main industry in Iraq is the oil industry. Damage to industry infrastructure such as oil drilling sites, refineries and pipelines, whether deliberate sabotage or otherwise, carries a risk of environmental contamination and the ity that drinking water and food sources will become polluted with crude and/or refined petroleum compounds. Oil installation fires, producing plumes pollutant and irritant smoke, represent another potential hazard to human health and the environment.

In June 2014, Islamic State militants took control of the Muthanna chemical weapons complex, which is located approximately 70 km from Baghdad. The complex is believed to hold 2500 rockets filled with sarin, about 180 tonnes of sodium cyanide, as well as munitions and storage vessels containing residues of mustard agent, all sealed in two bunkers. The sarin rockets are old, degraded and thought to be unusable. The status of the sodium cyanide is unknown. It is believed that the chemicals would be extremely hazardous to anyone attempting to handle them. The intentions of ISIL with regard to the chemicals and their capacity to manipulate these chemicals are unknown at present.

Public health risks will largely depend on the nature and quantity of the chemicals involved in any release. The affected populations may suffer either traumatic or chemical injuries as a direct result of a chemical release or indirect health consequences following the ingestion of contaminated drinking water and food sources, or both.

Priority interventions

As priority interventions, public access to sites of a chemical release should be controlled to prevent exposure and, if possible, the chemical release should be contained. It is important that chemically-contaminated patients are decontaminated before they enter a health-care facility to prevent staff and other patients being affected by the chemicals. Health authorities should provide information to health-care staff and the public about the hazards of high-risk chemicals and the appropriate action to take.

Health staff should be trained in the recognition and management of symptoms of chemical exposures[10].

[10] Information in Arabic on a range of highly toxic chemicals, including what to do in case of chemical release, can be found at: http://www.emro.who.int/ceha/ceha-infocus/chemical-accidents-management.html and at http://who.int/environmental_health_emergencies/deliberate_events/en/. The International Chemical Safety Cards provide concise information in English on a range of chemicals and can be accessed at: http://www.inchem.org/documents/icsc/icsc/eics0126.htm and http://www.ilo.org/dyn/icsc/showcard.home.

Annex 1 WHO recommended case definitions

Acute diarrhoea
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 cholera 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.

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 old:
- cough or difficulty breathing, and
- for infants aged 2 months to 1 year, breathing 50 or more times per minute, or
- for 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)[10]
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).

[10] An interim recommended case definition.

Measles

Fever and maculopapular rash (i.e. non-vesicular) with:

- cough and coryza (i.e. runny nose), or
- conjunctivitis (i.e. red eyes).

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 purpural 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 aetiology.

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[11]

Code	Sub-Domain	Title	Description
H-C.1	H1 General clinical services & essential trauma care	Number of outpatient consultations per person per year (attendance rate or consultation rate)	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.
H-A.1.a	H1 General clinical services & essential trauma care	Number of functional basic health units/ 10 000 population	Proxy indicator of geographical accessibility, and of equity in availability of health facilities across different administrative units.
H-A.1.b	H1 General clinical services & essential trauma care	Number of functional health centres/ 50 000 population	Proxy indicator of geographical accessibility, and of equity in availability of Health Facilties across different administrative units
H-A.1.c	H1 General clinical services & essential trauma care	Number of functional district-rural hospitals/250 000 population	Proxy indicator of geographical accessibility, and of equity in availability of Health Facilties across different administrative units
H-A.9a	H1 General clinical services & essential trauma care	Number and Percentage of non functional health facilities	Indicator of the consequence of the crisis on the availability of the health services
H-A.9b	H1 General clinical services & essential trauma care	Number and Percentage of health facilities supported by humanitarian organisations	Indicator of support by health cluster partners beside MoH to the health system; in very disrupted health system can be a proxy for functional health facilities/ services as non-supported health facilities have stopped functioning
H-A.5	H1 General clinical services & essential trauma care	Number of inpatient beds per 10 000 population	Indicator for the availability of hospital beds across crisis areas and proxy indicator of equity in the allocation of resources.
H-A.7	H1 General clinical services & essential trauma care	Number of health workers per 10 000 population	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.
H-A.8	H1 General clinical services & essential trauma care	Number of community health workers per 10 000 population	Indicator monitoring the availability of human resources key to delivering community-based intervention.
H-C.2	H1 General clinical services & essential trauma care	Number of consultations per clinician per day	Measure for the workload and proxy indicator of the quality of care.
H-A.9	H1 General clinical services & essential trauma care; H2 Child health; H3 Communicable diseases; H4 Sexual and Reproductive Health	Number and percentage of functional health facilities providing selected relevant services	Proxy indicator for the physical availability and geographical accessibility of selected services relevant to the local context.
H-C.3	H5 Non communicable diseases and mental health; H6 Environmental Health	Coverage of measles vaccination (%)	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.

[11] http://www.humanitarianresponse.info/applications/ir/indicators/global-clusters/7?search_api_views_fulltext=&page=2

Code	Sub-Domain	Title	Description
H-C.4	H2 Child health	Coverage of DTP3 in < 1 year old (%)	Indicators 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 DTP3 coverage.
H-R.1	H3 Communicable diseases; H5 Non communicable diseases and mental health	Incidence for selected diseases relevant to the local context	Useful measure of the burden of diseases and detect outbreaks. The list of diseases is context specific and can include communicable and non-communicable diseases.
H-R.3	H3 Communicable diseases; H5 Non communicable diseases and mental health	Case Fatality Ratio (CFR) for most common diseases	Probability of dying as a result of a given disease. Is a result of a mixture of disease severity and quality of health care.
H-A.2a	H4.2 Maternal and newborn care	Number of functional health facility with Basic Emergency Obstetric Care (BEmOC) per 500 000 population	Proxy indicator for the physical availability and geographical accessibility of emergency obstetric services and their distribution across districts. An unbalance between the availability of BEmOC and CEmOC (with too few BEmOC) is often observed.
H-A.2	H4.2 Maternal and newborn care	Number of functional health facilities with Comprehensive Emergency Obstetric Care (CEmOC) per 500 000 population	Proxy indicator for the physical availability and geographical accessibility of emergency obstetric services and their distribution across districts in the affected areas. An unbalance between the availability of BEmOC and CEmOC (with too few BEmOC) is often observed.
H-C.5	H4.2 Maternal and newborn care	Percentage of births assisted by a skilled attendant	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 systems ability to provide adequate care for pregnant women during labour and delivery.
H-C.6	H4.2 Maternal and newborn care	Percentage of deliveries by caesarean section	The proportion of all deliveries by caesarean section in a geographical area is a measure of access to and use of a common obstetric interventions for a verting 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.
H-A.6	H4.3 Sexual violence	Percentage of functional health facilities with clinical management of rape survivor services	Key indicator to measure the allocation of resources and the availability of services to address consequenc-es of sexual violence.

Annex 3

Heatmap of health risks in the current crises

Public health risk	Heat matrix
Traumatic injuries	Very high
Acute watery diarrhoea	Very high
Acute respiratory infections	Very high
Disruption of health services	High
Overload of health services	Very high
Mental health disorders	Very high
Consequences of uncontrolled hypertension	Very high
Complications of uncontrolled diabetes	Very high
Severe asthma	High
Severe acute malnutrition	High
Maternal mortality	High
Neonatal mortality	High

Legend - Heat matrix

Very high	High	Moderate	Low

World Health Organization

World Health Organization
20 Avenue Appia
CH-1211 Geneva 27 - Switzerland
http://www.who.int/disasters/