

Public health risk assessment and interventions

The Horn of Africa: Drought and famine crisis

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WHO Disease Control in Emergencies
WHO Communicable Diseases Working Group on Emergencies,
WHO Regional Offices for Africa and Eastern Mediterranean,
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Preface

The purpose of this public health risk assessment is to provide health professionals in United Nations agencies, nongovernmental organizations, international and local organizations, donor agencies and local authorities, who are currently working with populations affected by the emergency in the Horn of Africa, with up-to-date technical guidance on the major public health threats faced by the populations affected by the drought and famine conditions in the sub-region.

The topic areas addressed have been selected on the basis of the burden of morbidity and mortality, as well as the potential for their increased risk in the affected area.

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 between all agencies working among the populations currently affected by the crisis.

1. BACKGROUND AND RISK FACTORS

1.1 Event description

The Horn of Africa (HoA) sub-region is experiencing the worst drought in 60 years, following two consecutive failed rainy seasons (2010-2011). The most affected countries are Djibouti, Ethiopia, Kenya and Somalia. The impact of the drought, and ensuing extraordinarily high levels of malnutrition, internal and cross-border population displacement, compounded with conflict, has exacerbated physical and food insecurity and resulted in a crisis estimated to involve in excess of 10 million people (OCHA 14/07/11). The three countries experiencing the worst of the crisis are Somalia (direct impact of drought), Ethiopia and Kenya (refugee influx as well as direct impact of drought).

Global acute malnutrition (GAM) rates in parts of Bakool and Lower Shabelle in Somalia are at 50% with death rates exceeding 6 per 10,000 per day¹. In Somali refugees arriving in Ethiopia (Dollo Ado camp), GAM of 47% and severe acute malnutrition (SAM) of 35% were reported; in those arriving in Kenya (Dadaab), that of 30% and 18% respectively. These levels are all above the threshold of 10% wasting reflecting a serious problem and are much higher than the national rates reflected in Table 1.

This assessment of disease risk on the affected HoA populations and recommended public health interventions has focused on the impact of malnutrition against the national disease profiles, mindful that specific national risks may be exported to camps in neighbouring countries and this crisis will be long term.

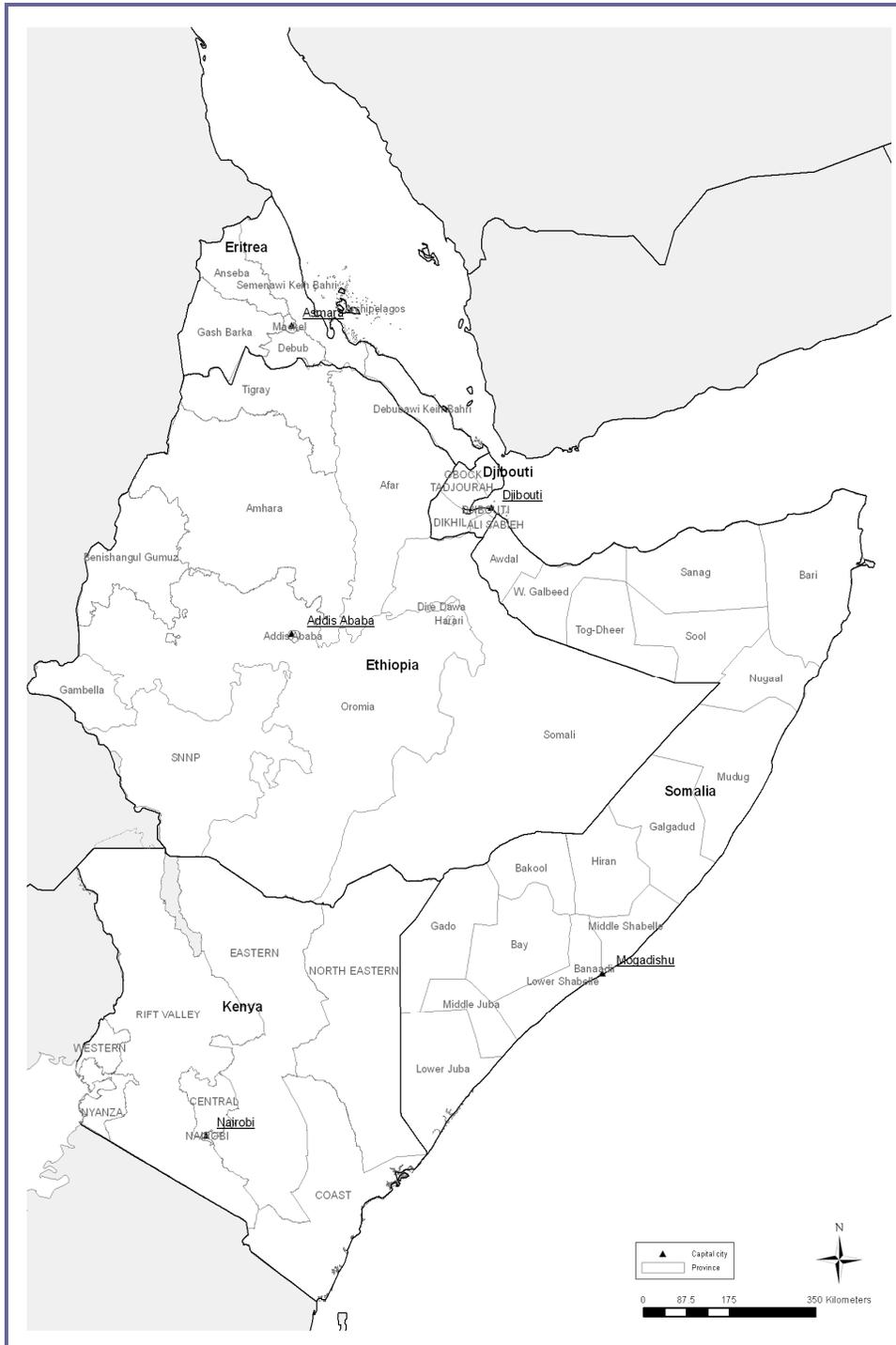
Malnutrition not only increases the risk of contracting infectious diseases, it also increases disease severity and therefore the risk of death. This, added to being weak and stressed from displacement and fleeing from insecurity, along with poor prior health and immunization status, decreased access to basic needs such as food, water, shelter, and sanitation, will put these populations at high risk of contracting infectious disease and subsequent death. Furthermore, infectious diseases can also exacerbate malnutrition. This destructive cycle needs to be broken with appropriate nutritional support for the population, treatment of malnutrition as well as preventing and rapidly treating disease.

In conjunction with other humanitarian interventions to improve access to food, water, shelter and health care services, including the treatment of medical complications in malnourished children, coordinated sub-regional HoA emergency disease surveillance systems will be essential to monitor the health status of the populations as well as to detect and control disease outbreaks rapidly.

Preparedness for, and measures to prevent outbreaks of measles and diarrhoeal diseases should be a priority, particularly if these poorly immunized populations are housed in overcrowded settings with limited water, sanitation and hygiene resources.

¹ OCHA/FEWSNET 28 June 2011

Fig 1. The Horn of Africa²



² The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

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1.2 HoA sub-regional context

Table 1. Key country indicators*

Indicator 2009 - Source	Djibouti	Ethiopia	Kenya	Somalia
Human Development Index Rank (172) - UNDP	147	157	128	Rank n/a
GNI per capita (US\$) - World Bank	1280	330	770	≤ 735
Population total in thousands - UN Population Division	864	82825	39802	9133
Population median age years - WHO	21	18	18	18
% of children with moderate to severe wasting	17	12	7	6
Infant mortality rate (<1yrs) /1000 live births - UN Population Division	75	67	55	109
Neonatal mortality rate/1000 live births - WHO	35	36	27	52
Under 5 yrs mortality rate/1000 live births - UN Population Division	94	104	84	180
Diarrhoeal deaths/year associated with poor water, hygiene and sanitation	500	112,100	23,700	16,900
Adult mortality rate (probability of dying between 15 - 60 yrs/1000 population - WHO	298	412	319	366
Life expectancy at birth (years) - UN Population Division	56	56	60	45

*<http://apps.who.int/ghodata/?theme=country>

*http://www.unicef.org/statistics/index_countrystats.html

* http://www.who.int/quantifying_ehimpacts/national/countryprofile/en/index.html

Table 2. Recent disease outbreaks in the affected and neighbouring countries from 2009

Country	Outbreak	Year
Djibouti	Pandemic (H1N1) 2009	2009
	Cholera	2010
Ethiopia	Pandemic H1N1 2009, Meningococcal meningitis	2009
Kenya	Polio, Shigellosis, Pandemic H1N1 2009, Cholera	2009
	Cholera, Measles	2010
	Meningococcal meningitis	2011
Somalia	Suspected cholera, Pandemic (H1N1) 2009	2009
	Pandemic (H1N1) 2009	2011
Uganda	Polio, Meningococcal meningitis, Pandemic H1N1 2009, Cholera, Acute Haemorrhagic Fever Syndrome	2009
	Polio, Meningococcal meningitis, Yellow fever, Cholera	2010
	Acute Haemorrhagic Fever Syndrome	2011

Source: WHO HSE/ARO

Table 3. Current outbreak reported in situation updates from affected countries as of 15 July 2011

Country	Disease
Djibouti	Measles in Yoboki
Ethiopia	Measles; meningitis; acute watery diarrhoea in parts of Afar, Somali and Oromia regions
Kenya	Measles in Daadab camps
Somalia	Cholera in Mogadishu & Lower Shebele; Measles in Mogadishu; Dengue in Mogadishu & Berbera

Source: OCHA

2. IMMEDIATE PUBLIC HEALTH RISKS

The nature and scale of the public health risks will be largely dependent upon the demographics and location of the population groups affected. These fall into two broad categories including the large numbers of the displaced currently looking for food in neighbouring countries and are being cared for in large camps for displaced populations, especially Somalis arriving in Kenya and Ethiopia or even internally displaced. The second category is the non displaced famine-affected population in the countries of the Horn of Africa.

Immediate public health risks include:

- Acute malnutrition
- Water and food-borne diseases
- Diseases associated with crowding
- Vaccine preventable diseases
- Vector-borne diseases

Health risks among the displaced population will include complications of acute malnutrition and micronutrient deficiencies. As well, if they are located in overcrowded or unsanitary settings without safe water or appropriate and adequate food for an extended period, there is greater risk of infectious diseases (such as diarrhoea, acute respiratory infections and vaccine-preventable disease in the absence of a sub-optimal vaccination status).

At present, there is limited information on the status of health care access and on disruptions in water/sanitation/food supplies among the non-displaced populations in the affected countries. There will also be risks with interruptions in the treatment of chronic conditions (both non-communicable, such as hypertension and diabetes, and communicable, such as TB and HIV/AIDS).

The following public health risks should therefore be considered separately, depending on which group is being addressed; the displaced population fleeing to Kenya and Ethiopia, or the drought affected populations who have remained in their respective communities.

More detailed information is available in the references provided in *Section 6* to complement the key messages highlighted.

2.1 Malnutrition

Very high levels of malnutrition have been reported in the four most affected countries. Famine has been declared in Somalia which has been the most affected in the region. Malnutrition and mortality could increase in the regions affected. Especially at risk are infants and young children, pregnant and lactating women and older persons. However, due to the extent of the crisis, all population groups can be affected. The risk of malnutrition is likely to increase if there is lack of, or inadequate support for mothers or caretakers, to encourage appropriate infant and young child feeding and if the population does not have access to adequate and appropriate food and health care.

2.2 Water/sanitation/hygiene-related and food-borne diseases

Safe food supply, quantity and quality of water, sanitary conditions and hygiene facilities, and to an extent the level of overcrowding in camps, will be critical determinants of water-borne and food-borne disease outbreaks, including **cholera, typhoid fever, shigellosis, hepatitis A and E**, among the displaced populations. Vector-borne diseases such as malaria, dengue, and yellow fever may also spread if environmental conditions favour proliferation of mosquitoes near residential areas.

2.3 Diseases associated with crowding

Thousands of refugees are arriving every day in overcrowded camps already hosting more than 400,000 people in Kenya and over 150,000 people in Ethiopia, raising the risk of transmission of certain communicable diseases. If displaced populations are housed in large (>1000), crowded camps or locations for extended periods, the risk of transmission may increase of certain diseases that are spread from person to person through respiratory route. These diseases include **measles, diphtheria, and pertussis** (see section below on vaccine-preventable diseases), and **acute respiratory infections (ARI), meningococcal disease and tuberculosis**. If ventilation is inadequate, this risk is increased. Overcrowding can also increase the likelihood of transmission of water-borne and vector-borne diseases.

Acute respiratory infections include any infection of the upper or lower respiratory tracts. Acute lower respiratory tract infection (ALRI) (pneumonia, bronchiolitis and bronchitis) is a major concern in children under five. Malnourished, low birth weight, non-breastfed children and those living in overcrowded conditions are at particularly higher risk of acquiring pneumonia. Infants less than six months of age, who are not breastfed, have a risk of dying from pneumonia that is five times higher than in infants who are exclusively breastfed for the first six months.

Influenza, a cause of ARI, and influenza-like illnesses (ILI) will remain a moderate risk. The last cases of influenza caused by pandemic (H1N1) 2009 virus were reporting in Kenya, Ethiopia, Somalia, and Djibouti in 2009. Pandemic (H1N1)2009 influenza is transmitted from person to person as easily as normal seasonal influenza, by exposure to infected droplets expelled by coughing or sneezing or via contaminated hands or surfaces, as with other respiratory infections.

Meningococcal disease is spread from person to person through respiratory droplets from infected people. Transmission is facilitated by close contact and crowded living conditions, including displaced or refugees camps. Part of the Horn of Africa is located in the meningitis belt which is a hyperendemic area for meningitis and where outbreaks tend to occur between January and May.

Transmissions of **diarrhoeal** and **vector-borne disease** are also exacerbated by overcrowding.

2.4 Vaccine-preventable disease and routine immunization coverage

The vaccination coverage for most childhood vaccines is sub-optimal in HoA countries, and is particularly poor in Somalia owing to the prolonged conflict situation. The highest risk of an outbreak in this current crisis is that of **measles. Polio, pertussis** and **diphtheria** outbreaks may also occur.

WHO and UNICEF indicate very low measles (MCV), diphtheria-tetanus-pertussis (DPT), and polio (OPV) immunization coverage among one-year-old children in Somalia.

Measles transmission is ongoing in the 4 countries with over 7,000 cases officially confirmed in Somalia in 2011 alone; in Kenya there have been 462 reported cases (11 deaths) of measles from the North Eastern Province; and 6000 cases have been reported in Ethiopia to date (WHO AFRO IST). Measles and malnutrition exacerbate each other and high death rates can result from measles-related complications in malnourished children, including diarrhoea and pneumonia.

Although no case of polio has been reported this year in the 4 most affected countries, 4 cases were detected in Uganda, with a genetic link to the 2009 outbreak in Turkana District, Kenya - signifying over 12 months of undetected circulation of the polio virus. Moreover, surveillance has been sub-optimal at sub-national level in both Kenya and Uganda. If feasible, as soon as nutritional status allows, vaccination of children upon arrival should be carried out at least against measles, together with vitamin A administration, in addition to potential catch-up vaccination campaigns in camps.

Tetanus. Given low DPT3 coverage in Somalia, appropriate management of injuries should be implemented as soon as possible to minimize future disability and avert avoidable deaths in the ongoing

and possible escalation of the conflict. All wounds and injuries should be scrutinized as *Clostridium tetani* spores that are present in the soil can infect trivial, unnoticed wounds and lacerations. The incubation period of tetanus is usually three to 21 days. Waning tetanus immunity in adults increases the likelihood of morbidity and mortality from **tetanus**. **Gangrene** is a complication of wound contamination, and prompt wound treatment is critical for its prevention. Gangrenous wounds should be managed aggressively, with surgical removal of gangrenous tissue. There is no risk of transmission of gangrene to unaffected persons.

Table 4. Population vaccination coverage, 2011, by affected and neighbouring countries

Antigen (% coverage)*	Djibouti	Ethiopia	Kenya	Somalia	Uganda
BCG	90	76	75	29	90
Diphtheria, Pertussis, Tetanus, 3 rd dose	89	79	75	31	64
Hepatitis B, 3 rd dose	89	79	75	.*	64
<i>Haemophilus influenzae</i> type b (Hib) 3 rd dose	89	79	75	.*	64
MCV (measles-containing vaccine)	73	75	74	24	68
Polio, 3 rd dose	89	76	71	28	59

* Official country estimates reported to WHO/UNICEF, as of 01 June 2011, Hepatitis and Hib vaccine have not been introduced in Somalia.

2.5 Vector-borne diseases and zoonotic diseases

P. falciparum **malaria**, the potentially deadly form of malaria, is spread by bites from *Anopheles* mosquitoes. It is endemic in Kenya, Somalia, Djibouti and Ethiopia. Many of the areas affected by the famine in Kenya and Ethiopia are generally low risk areas of malaria transmission due to aridity. However, these are also malaria epidemic prone areas as malaria vectors can multiply very rapidly in the event of rainfall. If the population density increases, in particular in camps where breeding sites can be found in water containers or in spilt or rain surface water, malaria epidemic can rapidly break out. This is particularly dangerous in refugee camp populations that are not semi immune due to the relatively low level of transmission. It is important to use malaria Rapid Diagnostic Tests (RDT) because similarly feverish outbreaks of Dengue Haemorrhagic Fever (DHF) or typhoid can appear to be malaria until RDT testing proves otherwise. Coastal areas of Somalia including Mogadishu have moderate risk but have experienced unseasonal rainfall recently and are reporting RDT confirmed, acute malaria cases in areas south of Mogadishu.

Dengue and **Yellow fever** are spread by bites from *Aedes aegypti* mosquitoes and are endemic in the affected areas, with both Kenya and Ethiopia in particular risk of yellow fever outbreaks. Risk of transmission is increased among people living in inadequate shelters and/or overcrowded conditions, particularly where fresh water is stored in unprotected water containers and rainfall collects in other artificial containers, allowing mosquito vectors to proliferate.

Visceral leishmaniasis (Kala-Azar) cases occur in Northern Kenya. Population displacement may increase the risk of exposure to the phlebotomine sand fly vector, although symptoms may not occur for weeks to months following exposure.

The risk of **Plague** in the four countries is very low. The last outbreak was in Southern Kenya a decade ago.

2.6 Other public health risks and considerations

When an emergency develops, people are subjected to chaotic situations that are known to substantially increase their **risk of contracting HIV**. These situations can include massive displacement of people from

their homes, women and children left to fend for themselves, social services overwhelmed or destroyed, and a lack of information and means to prevent HIV infection, such as clean needles, safe blood transfusions, and availability of condoms. Djibouti and Somalia already have very low coverage of essential HIV prevention, treatment and care interventions (Table 5). Efforts should be made to ensure that HIV/AIDS patients receiving anti-retroviral therapy do not have their treatment interrupted.

Table 5. HIV in Djibouti, Ethiopia, Kenya and Somalia

Indicator	Djibouti	Ethiopia	Kenya	Somalia
Adult (15–49) HIV prevalence percent	2.5%	...	6.3%	0.7%
Estimated antiretroviral therapy coverage	21%	...	65%	9%
Estimated percentage of pregnant women living with HIV who received antiretrovirals for preventing mother-to-child transmission	10%	...	73%	...
Percentage of estimated HIV-positive incident TB cases that received treatment for TB and HIV	23%	41%	23%	3%

Source: UNAIDS Report on Global AIDS Epidemic 2010

Tuberculosis (TB) is a major public health problem in Djibouti, Ethiopia, Kenya and Somalia (Table 6). Successful control programmes have been implemented in these four countries building a network of partners who are closely involved in TB control efforts. The potential interruption of treatment in the acute phase of this emergency and loss of patient follow-up is likely to be a significant problem. It is therefore essential that strong collaboration is established between health workers responding to the emergency and the established national TB control services (See section 6, Tuberculosis)

Table 6. TB in Djibouti, Ethiopia, Kenya and Somalia

Indicator	Djibouti	Ethiopia	Kenya	Somalia
Estimated number of TB cases, all forms	5,400	300,000	120,000	26,000
Estimated incidence of TB per 100,000 population, all forms	619	359	305	285
Proportion of TB patients tested who are HIV-positive	10%	20%	44%	14%
Number of confirmed MDR TB cases	NA	233	150	NA

Source: WHO HQ, 2009 TB programme data

Reproductive health concerns include access to basic and comprehensive emergency obstetric care (EmOC), prevention and management of the consequences of sexual violence, reducing transmission of HIV, treatment of sexually transmitted infections and availability of contraceptives to meet demand. The Minimal Initial Service Package (MISP) for reproductive health is a priority set of life-saving activities to be implemented at the onset of an emergency and includes critical components to meet these needs.

Noncommunicable diseases (NCDs). Some of the displaced population may be in need of regular medication for their chronic conditions such as diabetes and hypertension. The priorities during the acute phase of this emergency are to ensure that patients with chronic diseases have access to essential drugs and medical supervision.

Mental health and psychosocial support. Micronutrient deficiencies (e.g. lack of iron and iodine) and lack of psychosocial stimulation among young children inhibit development (cognitive, motor, language) and can cause lifelong intellectual disability. Many caregivers are unavailable or unable to provide psychosocial stimulation to their children during food crises due to their own poor physical or mental health. During food crises, nutritional deficiencies and a lack of stimulation create a vicious cycle in which deprivation in one can result in further deprivation in the other. Combination nutrition/stimulation programmes that emphasize appropriate feeding practices and responsive parenting (e.g. proactive stimulation and appropriate responses) have a greater impact than either intervention alone. Indeed,

nutrition programmes that contain a psychosocial component are more effective in promoting growth and positive child development than nutritional programmes without a psychosocial component.

In addition, people of all ages in the affected population are likely to be burdened by a wide range of symptoms of distress caused by continuing danger, loss, trauma, and changed or uncertain social conditions. It is important for health services to differentiate between normal psychological distress and moderate or severe mental disorders. Normal psychological distress may be reduced through psychological first aid and other non-clinical psychosocial interventions. However, 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.

Wounds and injuries. Surgical services are critically important both for urgent and for non-urgent conditions to save lives and prevent long term disability. This is of particular importance for serious injuries and obstetric emergencies. The majority of the injured are likely to have minor cuts and bruises; and some, particularly among those caught up in the unrest will suffer from penetrating injuries from gun shots and shrapnel, will require surgery, blood transfusion and other intensive treatment. Risk of **wound infection** and **tetanus** may be a problem if access to health facilities is difficult and the presentation of acute injuries is delayed.

Environmental risks such as poor management of waste, including health-care waste, can potentially expose health-care workers, waste handlers, patients and the community at large to infection, toxic effects and injuries as well as increasing the risk of polluting the environment.

Intestinal worms are common in the Horn of Africa. Schistosomiasis may contaminate ponds and facilitate transmission in the camps. In 2007 there was an outbreak of schistosomiasis in north-eastern Kenya. Others such as *Ascaris lumbricoides* can significantly aggravate malnutrition.

Drug and equipment donations. Inappropriate donations of medicines, medical equipment and medical supplies can be minimized by adherence by donors to the interagency guidelines (for additional information, see section 6, Information Sources, Drug donations). In general, donated drugs and medical equipment should explicitly address expressed official needs, and should be discussed with National Health Authorities before sending (for additional information, see section 6, *Drug donations*). In general, the key principles are:

- donated drugs must be on the national list of registered drugs;
- donated drugs must be labelled in English or the national language;
- the date of expiration of the drugs must be no less than one year from arrival in the country.

3. Specific priority interventions for immediate implementation

Management of malnutrition

- Treatment of severe acute malnutrition (SAM) in <5 years of age: uncomplicated cases as outpatients with appropriate ready-to-use therapeutic foods; cases with medical complications in hospitals or stabilization centres with the appropriate therapeutic foods and treatment of complications.
- Treatment of moderate acute malnutrition (MAM) in <5 years of age and support for pregnant and lactating women: distribution of appropriate supplementary foods including screening and referring for diseases.
- Promotion and protection of exclusive breastfeeding of infants from 0 to 6 months of age and continued breastfeeding of children up to 2 years and beyond with the introduction of appropriate and safe complementary foods at 6 months of age (see reference for key messages on infant and young child feeding).
- Donations of infant formula and other breast-milk substitutes can increase morbidity and mortality in infants and young children and should be avoided. Targeting, use, procurement, management and distribution of these products should be strictly controlled, based on technical advice, and should comply with the Operational Guidance on Infant feeding in emergencies (see Section 6, Malnutrition).
- The nutritional status of the population should be continuously monitored.
- The promotion of psychosocial stimulation should be part of the management of malnutrition in children

Food and safe food preparation

- Support access to foods either through distribution of appropriate and adequate general food rations or where feasible, distribution of cash and vouchers to ensure that the nutritional needs of the affected populations are met.
- Distribution of life-saving, high energy, and micronutrient rich ready-to-eat foods should be a high priority.
- Water should be considered as contaminated, and boiled or made safe through other treatment such as chlorination or filtration before it is consumed or used in food preparation.
- Health education targeting the general population should include simple measures related to food storage, preparation and consumption (see health education section) at household level, food handling at market level and safe water handling to avoid contamination of containers.
- Safe food is particularly important for infants, pregnant women and the elderly who are most susceptible to foodborne diseases.

Water supply and sanitation

- Ensuring uninterrupted provision of safe drinking-water is the most important preventive measure to reduce the outbreak risk of waterborne diseases.
- WHO and SPHERE recommend that each person be supplied with **at least 15 to 20 litres** of clean water per day.
- Free **chlorine is the most widely and easily used**, and the most affordable of the drinking-water disinfectants. It is also highly effective against nearly all waterborne pathogens, with the exception of protozoa, such as *cryptosporidium spp.*
 - For point-of-use or household water treatment, the most practical forms of free chlorine are liquid sodium hypochlorite, sodium calcium hypochlorite and bleaching powder.
 - The amount of chlorine needed depends mainly on the concentration of organic matter in the water and has to be determined for each situation. After 30 minutes, the residual concentration of active chlorine in the water should be between 0.2–0.5 mg/litre, which can be determined by using a special test kit.
- The provision of appropriate and sufficient water containers, cooking pots and fuel can reduce the

risk of cholera, other diarrhoeal diseases, and proliferation of mosquitoes by ensuring that water storage is protected and tapped.

- In addition, **adequate sanitation facilities** should be provided in the form of latrines or designated defecation areas, and hand washing facilities.
- Ready to use messages directed to the population with regards to body handling and funeral procedures should be prepared

Shelter and site planning

- Wherever possible, shelters for the displaced or homeless must be placed with sufficient space between them as well as sufficient space within, to prevent overcrowding.
- Shelters should have adequate ventilation to prevent the spread of diseases including measles, respiratory infections, diarrhoeal diseases, TB and vector-borne diseases.
- In shelter sites and when distributing food, particular attention and protection should be given to women and unaccompanied minors.

Case management

- Heightened community awareness of the need for **early treatment** and reinforcement of **proper case management** is important in reducing the impact of communicable diseases.
- The use of **standard treatment protocols** in health facilities with agreed upon first-line drugs is crucial to ensure effective diagnosis and treatment for acute respiratory infections, main epidemic-prone diseases (including cholera, shigellosis, typhoid, hepatitis, measles, malaria, meningitis) and STIs. Artemisinin-based combination therapy (ACT) is recommended for treatment of malaria. National protocol recommends artemether-lumefantrine in Somalia, Ethiopia and Kenya. Whenever possible, testing of fever cases with a WHO recommended Rapid Diagnostics Test (RDTm) for *P. falciparum* and *P. vivax* should precede treatment against malaria in order to optimise malaria treatment outcomes, to strengthen surveillance and confirm outbreaks early, including diseases that are not malaria but which could be presenting in camps with malaria-like symptoms (Dengue, chikungunya, Rift Valley Fever, Typhoid Fever).
- Standard **infection control practices** in accordance with national protocols should also be in place.
- Given the on-going cholera outbreak in Somalia and the endemicity of the disease in the region, refugee camps should have identified and prepared ready-to-use settings for establishing of specific isolation and treatment centres (such as cholera treatment centres and oral rehydration centres), and outbreak control plans in case of cholera or shigellosis outbreaks.

Surveillance/early warning and response system

The purpose of the surveillance/early warning system is to detect outbreaks and monitor endemic diseases. Rapid detection of cases of epidemic-prone diseases is essential to ensure rapid control. The surveillance/early warning system should focus on the **priority epidemic-prone communicable diseases** most likely to occur in the drought-affected population, and;

- be simple, used uniformly and include **standard case definitions** and reporting forms (see section 6 for WHO case definitions);
- include **preparedness plans** for outbreak response, including outbreak investigation kits and an adequate stockpile of supplies for intervention;
- complement **existing surveillance structures** and ensure prompt investigation of reports of epidemic-prone diseases;
- be sensitive to unusual emerging and re-emerging communicable diseases of major public concern;
- identify key **laboratories** for prompt diagnosis and confirmation of the main communicable disease threats, as well as protocols for transport and tracking of specimens;
- data should be forwarded to the local ministry of health authorities and the relevant WHO country office;
- link with nutritional surveillance

Immunization

- In crowded or camp settings, vaccination using a **measles-containing vaccine**, together with **vitamin A supplementation** is an immediate priority health intervention. All children aged 6 months to 14 years should receive measles vaccine, regardless of previous vaccination or disease history, with vitamin A supplementation to those aged 6 to 59 months.
- Outside of crowded/camp settings, a single suspected measles case is sufficient to prompt the immediate implementation of measles control activities. Measles vaccine, together with vitamin A, should be made available immediately to all previously unvaccinated infants and children aged 6 to 59 months. Infants and children whose vaccination status is uncertain should also receive measles vaccine.
- Given ongoing **poliomyelitis** transmission in the area, every opportunity should be taken to give **OPV** to all children less than 5 years of age, in conjunction with measles vaccination and vitamin A supplementation.
- When the situation stabilizes, vaccinations routinely offered by the national immunization programme should be made available to all infants, pregnant women and other people as part of the provision of basic emergency health care services.
- Although vaccine can be used to control outbreaks in certain circumstances, **hepatitis A** vaccine is not recommended to prevent outbreaks in the affected population. Vaccination efforts should always be supplemented by health education and improved sanitation.
- Mass **tetanus vaccination** programmes to prevent disease are not indicated. Tetanus boosters may be indicated for previously vaccinated people who sustain open wounds and for other lacerations depending on their tetanus immunization history.
- **Typhoid vaccination**, in conjunction with other preventive measures may be useful to control typhoid if an outbreak starts, depending on local circumstances.
- **Oral cholera vaccines (OCV)**. The decision to use OCV in emergency-affected populations should be guided using the published WHO risk assessment tool (Section 6, Diarrhoeal diseases). However, current recommendations state that OCV should not be used once an outbreak has started or if basic public health priorities are not covered.
- **Meningococcal and Yellow fever vaccines**. Mass vaccination campaigns are key elements to limit the spread of the disease in case of outbreak. Global vaccine stockpiles for emergency situations are available. Requests should be sent to the *International Coordinating Group (ICG) on vaccine provision* in the event of an outbreak of these diseases based upon an analysis of the epidemiological situation, pre-existing stocks in the country, planned intervention strategy, and operational aspects of the outbreak response.

Vector control and personal protection

a). Within refugee camps in chronological order:

- Try to tightly cover all open water storage containers
- Add larvicide (Abate) to all containers that cannot be closed permanently
- Mount insecticide treated sheeting for new arrivals
- Conduct indoor residual spraying (IRS) of all dwellings with an insecticide that is proven effective
- If very rapid IRS is logistically impossible, distribute Long-Lasting insecticidal (LLIN) mosquito nets to all refugee camp residents
- In all cases, provide LLINs for all refugees leaving the camps

b). Outside the refugee camps:

- Consider, in consultation with the National Malaria Control Programmes concerned, to include the distribution of LLIN simultaneously with food distribution outside refugee camps. This can help prevent malaria amongst malnourished children, requiring supplementary feeding or even therapeutic feeding which has much a higher mortality rate and associated cost.

Risk communication

Risk communication is a critical tool for effective management of public health emergencies. When the public is at risk of a real or potential health threat, treatment options may be limited, direct interventions may take time to organize and resources may be few. Communicating advice and guidance, therefore, is often the most important public health tool in managing a risk (see Section 6, Risk Communication).

The five key principles of WHO Outbreak (Risk) Communication Guidelines are:

- **Trust** – any information needed by the at-risk groups to encourage behaviour that could minimise risk should be proactively released by authorities in a timely and accessible manner.
- **Announce early** – proactive communication of a real or potential health risk is crucial in alerting those affected.
- **Transparency** – maintaining the public's trust throughout a public health emergency requires ongoing transparency, including timely and complete information of a real or potential risk and its management.
- **Listening** – understanding the public's risk perception, views and concerns is crucial to effective communication and the broader emergency management it supports. Without knowing how people understand and perceive a given risk and what their existing beliefs and practices are, decisions and required behaviour changes necessary to protect health may not occur and societal or economic disruption may be more severe.
- **Planning** – public communication represents an enormous challenge for any public health authority and therefore demands sound planning, in advance. Planning is an important principle, but more importantly, it must translate into action.

4. Staff health

Vaccinations recommended for staff deployed to the Horn of Africa

Emergency settings differ widely in both their nature and in their epidemiological context. It is essential that medical preparation is as comprehensive as possible (with the limitations imposed by departure at short notice) and tailored specifically for the Horn of Africa.

A minimum period of time is needed to build up protective levels of antibodies after immunization, which may require several injections. If possible, vaccinations should take place 2 weeks in advance of departure (see table below).

Basic knowledge of first aid and stress management is important. Although increased stress is not always avoidable, good preparation can help prevent high levels of stress and limit its impact. (For additional information, see section 6, Travel advice).

A. Vaccination recommendations

Recommendation	Vaccine	Validity	Comments
Strongly recommended	Diphtheria	10 years	Can be combined with tetanus.
	Tetanus	10 years	Booster dose is recommended if not taken in the last 10 years
	Polio	10 years	
	Typhoid	3 years	
	Hepatitis A	Life	Recommended, if there is no proof of immunity by vaccine or illness, even if departure is at short notice. Can be combined with Hepatitis B.
	Hepatitis B	Life	Recommended, provided complete course is given.
	Measles, Mumps and Rubella		Recommended if not fully immunized in childhood, Potential risk in emergency situation.
Optional	Rabies		High risk zone. Pre-exposure immunization recommended
	*Nm meningitis		Currently low risk. Season generally runs Jan - May
	Influenza vaccine	1 year	Seasonal influenza vaccine as recommended for the northern hemisphere 2010-2011 season

*Nm = *Neisseria meningitidis*

Yellow fever

Vaccination should be considered for this group of travelers as many may be coming from or travelling through countries with a risk of yellow fever transmission.

Cholera prevention

Cholera primarily affects the most vulnerable who live in situations with decreased access to safe water and sanitation. WHO staff/team members normally are not living in these situations.

Primary prevention is possible by observing a few simple rules of good hygiene, safe water and food preparation. These rules include scrupulous hand washing, especially before food preparation and eating, thorough cooking of food and consumption while hot ("boil it, peel it or leave it"), boiling or treatment of drinking water, and use of sanitary facilities.

Vaccination: Based on WHO public health recommendations, vaccination against Cholera is not recommended systematically. The recommendation of this vaccine for staff before deployment should be based on risk assessment. Staff deployed should be first advised about the risks and should be briefed on

primary prevention (water supply and hygiene). They can receive the cholera vaccine (Dukoral) when available, if they wish, providing there is time to receive the 2 doses with a week interval prior to departure. (The vaccine is administered in 2 doses at a minimum of one week and a maximum of 6 weeks before departure. The protection starts a week after the second dose (15 days to be protected in the best case scenario).

B. Malaria Prophylaxis

Djibouti	Predominantly to <i>P. falciparum</i> exists throughout the year in the whole country. Recommended prevention: IV
Ethiopia	Approximately 60% <i>P. falciparum</i> , 40% <i>P.vivax</i> exists throughout the whole country below 2000 m. There is no malaria risk in Addis Ababa. Recommended prevention in risk areas: IV*
Kenya	Risk due predominantly to <i>P. falciparum</i> exists throughout the year in the whole country. Normally there is little risk in the city of Nairobi and in the highlands (above 2500m) of Central, Eastern, Nanza, Rift Valley and Western provinces. Recommended prevention: IV*
Somalia	Predominantly to <i>P. falciparum</i> exists throughout the year in the whole country. Risk is relatively low and seasonal in the the north. It is higher in the central and southern parts of the country. Recommended prevention: IV*

*WHO International Travel and Health (2011) Recommended prevention IV: Mosquito bite prevention plus atovaquone-proguanil, doxycycline or mefloquine chemoprophylaxis

It is recommended that a stand-by emergency treatment for *P. falciparum* be carried with the individual for all missions lasting more than 8 days in view of the potential difficulty in accessing health services. If the traveller takes chemoprophylaxis, the same medicine should not be used for treatment. For this reason the recommended medication for stand-by emergency treatment is artemether–lumefantrine (Coartem™), which is never used for prophylaxis. It is recommended that staff use protection against mosquito bites between dusk and dawn. In the event that fever develops, medical attention should be sought immediately.

C. Security Measures

It is extremely important, especially when working/travelling in Somalia to ensure that you have all the relevant phone numbers on your person at all times, for both Security and Health and Medical Services, and that you inform colleagues or Team Leader of your whereabouts.

D. Other precautions

Teams should be prepared to be completely self-sufficient and should be equipped with the following:

- medical kits, including chlorine tablets for water purification
- food and water: given that there will be an extreme shortage of basic food and drinking water
- tents/sleeping bags/bed nets
- personal equipment (torches etc)

Teams should be aware of how to access PEP in case of possible exposure to HIV and also be aware of all the relevant security emergency numbers in order to access this.

5. WHO-RECOMMENDED CASE DEFINITIONS

GAM (Global Acute Malnutrition)

Children 6.0–59.9 months; WFH <-2 Z score and/or MUAC <12.5cm, and/or nutritional oedema

SAM (Severe Acute Malnutrition)

WFH <-3 Z score, and/or MUAC <11.5cm, and/or nutritional oedema

MAM (Moderate Acute Malnutrition)

WFH -3 - <-2 Z score, and/or MUAC, 11.5-<12.5cm

ACUTE DIARRHOEA

Acute diarrhoea (passage of 3 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
- 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 <5 YEARS

Cough or difficulty breathing

and

Breathing 50 or more times per minute for infants aged 2 months to 1 year

Breathing 40 or more times per minute for children aged 1 to 5 years

and

No chest indrawing, no stridor, no general danger signs.

Note: Severe pneumonia = cough or difficulty breathing + **one or more of the following** (inability to drink or breastfeed, severe vomiting, convulsions, lethargy or unconsciousness) or chest indrawing or stridor in a otherwise calm child

SEVERE ACUTE RESPIRATORY INFECTION IN PERSONS > 5 YEARS

Sudden onset of Fever of 38 C or higher

and

Cough or Sore throat

and

Shortness of breath or difficulty breathing of a degree that requires in-patient hospital

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) **and** cough, 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, a suspected case of meningitis occurs when fever is 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. meningitides* or PCR.

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.

6. INFORMATION SOURCES

WHO headquarters/WHO Regional Offices for Africa (AFRO) and Eastern Mediterranean (EMRO)

WHO

<http://www.who.int/ar/>
<http://www.who.int/fr/>
<http://www.who.int/en/>
<http://www.afro.who.int/>
<http://www.afro.who.int/fr.html>
<http://www.emro.who.int/>
<http://www.emro.who.int/Arabic/>

Disease control in humanitarian emergencies (DCE), WHO/HQ

http://www.who.int/diseasecontrol_emergencies/en/

Health Action in Crises (HAC), WHO/HQ

<http://www.who.int/hac/en/>

Emergency and Humanitarian Action (EHA), WHO/AFRO

<http://www.afro.who.int/en/clusters-a-programmes/ard/emergency-and-humanitarian-action.html>

Emergency and Humanitarian Action (EHA), WHO/EMRO

<http://www.emro.who.int/eha/>

Situational updates

OCHA

<http://ochaonline.un.org/>

Reliefweb

<http://reliefweb.int/node/426060>

WHO - EMRO

<http://www.emro.who.int/index.asp>

WHO HQ

<http://www.who.int/hac/en/>

Child health in emergencies

Emergencies documents

http://www.who.int/child_adolescent_health/documents/emergencies/en/index.html

IMCI Documents

http://www.who.int/child_adolescent_health/documents/imci/en/index.html

Acute respiratory tract infections in children

http://www.who.int/fch/depts/cah/resp_infections/en/

Pocket book for hospital care for children (WHO, 2005)

http://www.who.int/child_adolescent_health/documents/9241546700/en/index.html

Child and Adolescent Health and Development (CAH), EMRO

<http://www.emro.who.int/cah/index.asp>

Dengue

<http://www.who.int/topics/dengue/en/>

Dengue guidelines for diagnosis, treatment, prevention and control. (WHO 2009)

http://whqlibdoc.who.int/publications/2009/9789241547871_eng.pdf

Guidelines for Dengue Surveillance and Mosquito Control, Second Edition, WHO Regional Office for Western Pacific Region, 2003

http://www.wpro.who.int/publications/pub_9290610689.htm

Update on the principles and use of rapid tests in Dengue WHO Regional Office for Western Pacific Region April 2009

http://www.wpro.who.int/internet/resources.ashx/MVP/Update+on+dengue+rapid+tests_15.04.09_final.pdf

Guidelines for treatment of dengue fever and dengue haemorrhagic fever in small hospitals, New Delhi, World Health Organization, WHO Regional Office for South-East Asia, 1999. [pdf-255 kb]

http://www.searo.who.int/LinkFiles/Dengue_Guideline-dengue.pdf

Dengue haemorrhagic fever (film): early recognition, diagnosis and hospital management an audiovisual guide for health-care workers responding to outbreaks. (English version)

http://www.who.int/csr/about/what_we_do/films/en/index.html

Diarrhoeal diseases

Key documents and position papers under Global task force on cholera control

<http://www.who.int/cholera/publications/en/>

Prevention and control of cholera outbreaks: WHO policy and recommendations

<http://www.who.int/cholera/technical/prevention/control/en/index.html>

WHO position paper on Oral Rehydration Salts to reduce mortality

<http://www.who.int/cholera/technical/en/index.html>

WHO position paper on cholera vaccine use in Iraq, October 2007

<http://www.who.int/cholera/CholeraVaccineUseInIraqPositionPaper051007.pdf>

WHO position paper on cholera vaccine

<http://www.who.int/wer/2010/wer8513.pdf>

Acute diarrhoeal diseases in complex emergencies: critical steps.

http://whqlibdoc.who.int/hq/2010/WHO_CDS_CPE_ZFK_2004.6_Rev.1_eng.pdf

http://whqlibdoc.who.int/hq/2004/WHO_CDS_CPE_ZFK_2004.6_fre.pdf

Cholera outbreak: assessing the outbreak response and improving preparedness

http://www.who.int/cholera/publications/cholera_outbreak/

http://whqlibdoc.who.int/hq/2004/WHO_CDS_CPE_ZFK_2004.4_fre.pdf

First steps for managing an outbreak of acute diarrhoea.

http://whqlibdoc.who.int/hq/2010/WHO_CDS_CSR_NCS_2003.7_Rev.2_eng.pdf

Guidelines for the control of shigellosis, including epidemics due to Shigella dysenteriae type 1

<http://www.who.int/cholera/publications/shigellosis/>

Oral cholera vaccine use in complex emergencies: What next? Report of a WHO meeting. Cairo, Egypt, 14–16 December 2005.

http://www.who.int/cholera/publications/cholera_vaccines_emergencies_2005.pdf

Background document: the diagnosis, treatment, and prevention of typhoid fever (WHO, 2003)

http://whqlibdoc.who.int/hq/2003/WHO_V&B_03.07.pdf

Drug donations

Guidelines for Drug Donations (WHO, revised 1999)

http://www.who.int/selection_medicines/emergencies/guidelines_medicine_donations/en/

http://whqlibdoc.who.int/hq/1999/WHO_EDM_PAR_99.4.pdf

<http://apps.who.int/medicinedocs/pdf/whozip53f/whozip53f.pdf>

Environmental health in emergencies

http://www.who.int/water_sanitation_health/hygiene/emergencies/en/

<http://www.afro.who.int/en/clusters-a-programmes/hpr/protection-of-the-human-environment.html>

<http://www.emro.who.int/ceha/>

Food safety

Ensuring food safety in the aftermath of natural disasters

http://www.who.int/foodsafety/foodborne_disease/emergency/en/

Foodborne disease outbreaks: guidelines for investigation and control

http://www.who.int/foodsafety/publications/foodborne_disease/fdbmanual/en/

5 Keys to safer food : simple advice to consumers and food handlers

<http://www.who.int/foodsafety/consumer/5keys/en/index.html>

http://www.who.int/foodsafety/publications/consumer/en/5keys_fr.pdf

Guideline for the safe preparation, storage and handling of powdered infant formula (WHO, 2007)

<http://www.who.int/foodsafety/publications/micro/pif2007/en/index.html>

http://www.who.int/foodsafety/publications/micro/pif_guidelines_fr.pdf

Gender & Gender-based violence (see also Sexual and Reproductive Health in Emergencies below)

IASC Guidelines for Gender-based Violence Interventions in Humanitarian Settings (2005)

Arabic, English, French, Bahasa, Spanish

http://www.humanitarianinfo.org/iasc/pageloader.aspx?page=content-subsi-tf_gender-gbv

<http://www.humanitarianinfo.org/iasc/downloadDoc.aspx?docID=4435>

IASC Gender Handbook in Humanitarian Action Women, Girls, Boys and Men Different Needs – Equal Opportunities (2006)

http://www.who.int/hac/network/interagency/news/gender_handbook_draft/en/index.html

WHO/UNHCR Clinical management of rape survivors: Developing protocols for use with refugees and internally displaced persons. 2004 - Revised edition

<http://whqlibdoc.who.int/publications/2004/924159263X.pdf>

http://whqlibdoc.who.int/publications/2005/9242592633_fre.pdf

Women's health in emergencies

<http://www.who.int/hac/techguidance/pht/womenshealth/en/index.html>

WHO, UNHCR & UNFPA Clinical Management of Rape e-learning Programme (English and French)

http://libdoc.who.int/hac/CMoR_CDDownloadMultilingualVersion.zip

Online version: <http://iawg.net/cmor/>

Hepatitis

Hepatitis A

<http://www.who.int/csr/disease/hepatitis/whocdscsre2007/en/>

Hepatitis E

<http://www.who.int/csr/disease/hepatitis/whocdscsre200112/en/>

<http://www.who.int/mediacentre/factsheets/fs280/en/>

HIV/AIDS

Guidelines for addressing HIV in Humanitarian settings: Inter-Agency Standing Committee (IASC) guidelines(2009)

<http://www.who.int/hac/techguidance/pht/IASCHIV2009En.pdf>

AIDS and Sexually Transmitted Diseases (WHO-EMRO)

<http://www.emro.who.int/asd/>

Infection prevention and control in health care

WHO Aide – memoire: Standard Infection control precautions in health care, 2006

<http://www.who.int/csr/resources/publications/standardprecautions/en/index.html>

Infection prevention and control in health care for confirmed or suspected cases of pandemic (H1N1) 2009 and influenza-like illnesses, 2009

<http://www.who.int/csr/resources/publications/swineflu/swineinflcont/en/index.html>

WHO Policy on TB Infection Control in Health-Care Facilities, Congregate Settings and Households, 2009

http://whqlibdoc.who.int/publications/2009/9789241598323_eng.pdf

Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care WHO Interim Guidelines, 2007

http://www.who.int/csr/resources/publications/swineflu/WHO_CD_EPR_2007_6/en/index.html

Influenza

WHO Global Influenza Programme

<http://www.who.int/csr/disease/influenza/en/>

WHO-AFRO

<http://www.afro.who.int/en/clusters-a-programmes/dpc/epidemic-a-pandemic-alert-and-response>

WHO-EMRO

http://www.emro.who.int/csr/hIn1/clinical_management.htm

Injection safety (see also Patient safety below)

http://www.who.int/injection_safety/en/

http://www.who.int/injection_safety/Injection_safety_final-web.pdf

Guiding principles to ensure injection device security

http://www.who.int/injection_safety/Guiding_Principals_FR.pdf

http://www.who.int/injection_safety/WHOGuidPrinciplesInjEquipFinal.pdf

Immunization, vaccines and biologicals

<http://www.who.int/immunization/en/>

Laboratory specimen collection

Guidelines for the collection of clinical specimens during field investigation of outbreaks (WHO, 2000)

http://www.who.int/csr/resources/publications/surveillance/WHO_CDS_CSR_EDC_2000_4/en/

Lymphatic filariasis

<http://www.who.int/mediacentre/factsheets/fs102/en/>

Malaria

Guidelines for the treatment of malaria, Second edition (WHO, 2010)

<http://www.who.int/malaria/publications/atoz/9789241547925/en/index.html>

Malnutrition

Communicable diseases and severe food shortage situations (WHO, 2010)

http://www.who.int/diseasecontrol_emergencies/publications/food_shortage/en/index.html

The management of nutrition in major emergencies.

<http://www.who.int/nutrition/publications/emergencies/en/index.html>

<http://whqlibdoc.who.int/publications/2000/9241545208.pdf>

Infant and Young Child Feeding in Emergencies. Operational guidance for emergency relief staff and programme managers (IFE, 2007)

<http://www.enonline.net/resources/6>

IFE Orientation Package (2010)

<http://www.enonline.net/ife/orientation>

IASC Cluster module 17 on IFE

<http://www.humanitarianreform.org/Default.aspx?tabid=488>

Guide for the media on IFE (Arabic)

[http://www.enonline.net/pool/files/ife/media-guide-on-ife-arabic\(1\).pdf](http://www.enonline.net/pool/files/ife/media-guide-on-ife-arabic(1).pdf)

Guidelines for the inpatient treatment of severely malnourished children (WHO, 2003) [pdf-400kb]

http://www.who.int/nutrition/publications/guide_inpatient_text.pdf

Management of the child with a serious infection or severe malnutrition: guidelines at first referral level in developing countries (WHO, 2000)

http://www.who.int/child_adolescent_health/documents/fch_cah_00_1/en/index.html

http://whqlibdoc.who.int/hq/2002/WHO_FCH_CAH_00.1_fre.pdf

Nutrition, AFRO

<http://www.afro.who.int/en/clusters-a-programmes/hpr/food-safety-and-nutrition-fan/programme-components/nutrition.html>

Nutrition in emergencies publications

<http://www.who.int/topics/nutrition/publications/emergencies/en/>

Nutrition, EMRO

<http://www.emro.who.int/nutrition/index.htm>

Severe acute malnutrition publications

<http://www.who.int/nutrition/publications/severemalnutrition/en/index.html>

Moderate acute malnutrition publications

http://www.who.int/nutrition/publications/moderate_malnutrition/en/index.html

Management of dead bodies

Management of dead bodies after disasters: a field manual for first responders (PAHO, 2006)

<http://www.paho.org/english/dd/ped/DeadBodiesFieldManual.pdf>

Management of dead bodies in disaster situations (WHO, 2004)

<http://www.paho.org/english/DD/PED/DeadBodiesBook.pdf>

Measles

WHO/UNICEF Joint Statement on reducing measles mortality in emergencies

http://whqlibdoc.who.int/hq/2004/WHO_V&B_04.03.pdf

http://www.unicef.org/publications/index_19531.html

WHO Measles Vaccine Position paper

<http://www.who.int/wer/2009/wer8435.pdf>

Response to measles outbreaks in measles mortality reduction settings (This publication replaces "WHO Guidelines for Epidemic Preparedness and Response to Measles Outbreaks", May 1999.)

http://www.who.int/immunization/documents/WHO_IVB_09.03/en/index.html

<http://www.who.int/immunization/documents/date/en/index.html>

WHO measles information

<http://www.who.int/immunization/topics/measles/en/index.html>

http://www.who.int/immunization/wer7914measles_April2004_position_paper.pdf

Measles fact sheet

<http://www.who.int/mediacentre/factsheets/fs286/en/>

Immunization and Vaccines Development (IVD), AFRO

<http://www.afro.who.int/en/clusters-a-programmes/ard/immunization-and-vaccines-development/programme-components/measles-pre-elimination.html>

Vaccine Preventable Diseases and Immunization (VPI), EMRO

<http://www.emro.who.int/vpi/measles/>

Medical waste in emergencies

http://www.who.int/water_sanitation_health/medicalwaste/emergmedwaste/en/

Guidelines for Safe Disposal of Unwanted Pharmaceuticals in and after Emergencies (WHO, 1999)

<http://www.healthcarewaste.org/en/documents.html?id=15&suivant=16>

Four steps for the sound management of health-care waste in emergencies (WHO, 2005)

<http://www.healthcarewaste.org/en/documents.html?id=184&suivant=8>

Meningitis

Control of epidemic meningococcal disease. WHO practical guideline, 2nd edition (WHO, 1998)

<http://www.who.int/csr/resources/publications/meningitis/WHO EMC BAC 98 3 EN/en/>

<http://www.who.int/csr/resources/publications/meningitis/whoemcbac983f.pdf>

Mental health in emergencies

Mental Health and Psychosocial Well-Being among Children in Severe Food Shortage Situations (WHO, 2006)

http://www.who.int/mental_health/mental_health_food_shortage_children2.pdf (English)

http://www.who.int/mental_health/emergencies/mental_health_food_shortage_french.pdf

(French)

Mental Health and Psychosocial Support in Humanitarian Emergencies: What Should Humanitarian Health Actors Know? (IASC, 2010)

http://www.who.int/mental_health/emergencies/what_humanitarian_health_actors_shouldknow.pdf (English)

http://www.who.int/mental_health/emergencies/what_humanitarian_health_actors_shouldknow_french.pdf (French)

Patient safety (see also Injection safety above)

<http://www.who.int/patientsafety/en/>

Polio

WHO-recommended surveillance standard of poliomyelitis

http://www.who.int/immunization_monitoring/diseases/poliomyelitis_surveillance/en/index.html

Rabies

WHO-Guide for post-exposure prophylaxis

<http://www.who.int/rabies/human/postexp/en/>

WHO- Rabies page

<http://www.who.int/topics/rabies/en/>

Sexual and Reproductive Health in Emergencies (see also Gender and Gender based violence above)
Inter-agency Field Manual on Reproductive Health in Humanitarian Settings

http://www.who.int/reproductivehealth/publications/emergencies/field_manual/en/index.html

Minimal Initial Service package (MISP) for Reproductive Health in Crisis Situations

http://www.iawg.net/resources/MISP%20cheat%20sheet%2012%2017%2009_FINAL.pdf

<http://misp.rhrc.org/>

Inter-Agency Reproductive Health Kits for crisis situations

http://www.who.int/reproductivehealth/publications/emergencies/rh_kits/en/index.html

Reproductive Health in Emergencies (general)

<http://www.iawg.net/>

<http://www.who.int/reproductivehealth/topics/emergencies/en/index.html>

Risk communication

Information management and communication in emergencies and disasters.

http://new.paho.org/disasters/index.php?option=com_content&task=view&id=997&Itemid=1

WHO Outbreak Communication Planning Guide, 2008.

<http://www.who.int/ihr/library/WHOOutbreakCommsPlanngGuide.pdf>

WHO Outbreak communication guidelines

<http://www.who.int/infectious-disease-news/IDdocs/whocds200528/whocds200528en.pdf>

Specific messages:

Hand hygiene:

http://www.who.int/gpsc/5may/How_To_HandWash_Poster.pdf

Food safety:

<http://www.who.int/foodsafety/publications/consumer/5keys/en/index.html>

http://www.who.int/foodsafety/publications/consumer/en/5keys_fr.pdf

http://www.who.int/foodsafety/publications/consumer/en/Five_Keys_Arabic.pdf

Preventing water-related diseases:

<http://www.who.int/features/qa/31/en/>

Surgical care (see also Tetanus and Wounds and Injuries sections below)

Integrated Management Emergency and Essential Surgical Care (IMEESC) tool kit

<http://www.who.int/surgery/publications/imeesc/en/index.html>

Tetanus

Immunological basis of immunisation – tetanus

<http://www.who.int/immunization/documents/ISBN9789241595551/en/index.html>

WHO Position Paper on Tetanus Immunisation

http://www.who.int/immunization/wer8120tetanus_May06_position_paper.pdf

Travel advice

Guide on Safe Food for Travellers

<http://www.who.int/foodsafety/publications/consumer/travellers/en/index.html>

http://www.who.int/foodsafety/publications/consumer/travellers_fr.pdf

International Travel and Health (2011)

<http://www.who.int/ith/en/>

Tuberculosis

Tuberculosis care and control in refugee and displaced populations. An interagency field manual (2007).

http://whqlibdoc.who.int/publications/2007/9789241595421_eng.pdf.

Vector control

Integrated vector management

http://www.who.int/malaria/vector_control/ivm/en/index.html

Malaria vector control

<http://www.who.int/malaria/vectorcontrol.html>

Pesticides and their application for the control of vectors and pests of public health importance (2006)

http://whqlibdoc.who.int/hq/2006/WHO_CDS_NTD_WHOPEP_GCDPP_2006.1_eng.pdf

Water and Sanitation

Guidelines for drinking-water quality, fourth edition,

http://www.who.int/water_sanitation_health/publications/2011/dwg_guidelines/en/index.html

Environmental health in emergencies and disasters: a practical guide

http://www.who.int/water_sanitation_health/emergencies/emergencies2002/en/index.html

WHO Technical notes for emergencies

http://www.who.int/water_sanitation_health/hygiene/envsan/technotes/en/index.html

Frequently asked questions in case of emergencies

http://www.who.int/water_sanitation_health/emergencies/qa/en/index.html

Four steps for the sound management of health-care waste in emergencies

<http://www.healthcarewaste.org/en/documents.html?id=184&suiwant=25>

Evaluating household water treatment options: Health-based targets and microbiological performance specifications

http://www.who.int/water_sanitation_health/publications/2011/household_water/en/index.html

Health education and basic messages on water and food safety

http://www.emro.who.int/sudan/pdf/Cholera_SafeWater.pdf

Wounds and Injuries, Emergency Surgical Care (See also Tetanus above)

Prevention and management of wound infection

<http://www.who.int/hac/techguidance/tools/Prevention%20and%20management%20of%20wound%20infection.pdf>

Integrated Management of Emergency and Essential Surgical Care (IMEESC) tool kit

<http://www.who.int/surgery/publications/imeesc/en/index.html>

Best Practice Guidelines on Emergency Surgical Care in Disaster Situations

<http://www.who.int/surgery/publications/BestPracticeGuidelinesonESCinDisasters.pdf>

WHO generic essential emergency equipment list

<http://www.who.int/surgery/publications/EEEGenericListFormatted%2006.pdf>

Zoonotic diseases

<http://www.who.int/zoonoses/resources/en/>

<http://www.who.int/csr/disease/plague/en/>