

Public health risk assessment and interventions

Tropical Storm Ketsana and Typhoon Parma: the Philippines

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Preface

The purpose of this public health risk assessment is to provide health professionals in United Nations agencies, nongovernmental organizations, donor agencies and local authorities currently working with populations affected by the emergency in the Philippines, with up-to-date technical guidance on the major public health threats faced by the flood-affected population.

The topic areas addressed have been selected on the basis of the burden of morbidity, mortality and potential for increase in the 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

The Philippines is an archipelago located in the western Pacific; the capital and main port of entry is Manila.

The country comprises more than 7 000 islands with a total land area of approximately 300 000 square kilometres. There are three main groups of islands – Luzon in the north, Visayas in the central zone and Mindanao in the South. The country generally has a tropical climate with a wet season from June to November, cooler and dry from December to February, and hot and dry from March to May.

In 2007 the population of the Philippines was 88 million. The annual per capita income is USD 3 430 with a ranking of 102/179 on the UNDP Human Development Index 2007. In 2005, 23% of the population existed on less than USD1.25 per day.

On 26 September 2009, Tropical Storm Ketsana (known locally as Ondoy) hit Luzon island, including Manila, with wind gusts of up to 120 kph. The storm brought torrential rain (estimated 45 cm in 24 hours) which flooded villages and roads and forced thousands of families to seek shelter in evacuation centers. Six metre-high flood waters were reported in parts of Manila. The Cordillera Autonomous Region (CAR) and 25 provinces in Luzon were affected by flooding, with many landslides reported. Thousands of families were displaced and housed in evacuation sites in the heavily affected regions of Metro Manila, Central Luzon and CALABARZON region.

On 3 October, a second event, Typhoon Parma, made landfall north of Manila and compounded the situation. This storm displaced over 35 000 additional people to 188 evacuation centres.

As of 6 October, the National Disaster Coordinating Council (NDCC) reported that over 3 million people had been affected with more than 350 000 located in over 500 evacuation shelters. Over 290 deaths were reported.

The President of the Philippines has declared a state of national calamity and announced that the priorities of its relief operations are to implement and execute medical assistance and relief. Health issues are of major concern in districts affected by flooding.

According to estimates from the Department of Health (DoH), health facilities have sustained extensive damage ranging from submerged ground floors to damage and destruction of medical supplies and equipment, records, and office equipment. DoH reports the majority of hospital operations have now resumed and hospitals have been instructed to provide free service to victims. In addition, the capacity of the surveillance system to detect and respond to epidemics has been further weakened.

An initial rapid needs assessment conducted by the Government with the support of humanitarian partners identified priorities by region. Initial reports prioritized water, sanitation and hygiene issues, as well as emergency medicines and both food and non-food items for the displaced populations.

Given the structural damage to water facilities caused by the flooding, there is a high risk of waterborne diseases among the displaced populations. In addition, extensive damage to infrastructure and distribution systems, as well as to power supplies, render the safe preparation of food virtually impossible, posing an additional risk of foodborne diseases. Water purification units, hygiene kits, essential medicines, and rehydration fluids are urgently needed and have been requested by the Government.

Although noncommunicable diseases have recently replaced communicable diseases as the major causes of morbidity and mortality in the Philippines, in the wake of the flooding and mass population displacement the control of communicable diseases has now become an urgent priority.

Guidance for donors on donations of drugs and medical supplies has been developed by WHO in consultation with over 100 humanitarian organizations and experts (see Sections 2.6, ix, and 4, *Guidelines*

for Drug Donations). These guidelines will help to ensure that the donations are used to maximum effect for the affected population in the Philippines and will help to prevent stockpiling of unwanted medicines and medical supplies.

Factors increasing risks to health

1. **Interruption of safe water, sanitation and cooking facilities** due to disruption of electricity and fuel supplies. The populations displaced are at immediate and high risk of outbreaks of water/sanitation/hygiene-related and foodborne diseases such as **cholera, typhoid fever, shigellosis due to *Shigella dysenteriae* type 1 (Sd1), and hepatitis A and E.**
2. **Population displacement with overcrowding.** Populations in the affected areas and relief centres have a potentially higher risk of acquiring **acute respiratory infections (ARI)** associated with crowding. Increased risk of **measles and meningitis** is also associated with overcrowding.
3. **Increased exposure to disease vectors.** Displacement of populations can result in increased exposure to disease-carrying vectors, increasing the risk of **malaria and dengue** as well as other less commonly reported illnesses such as **Japanese encephalitis, hantavirus and chikungunya.** Flooding may initially flush out **mosquito breeding**, which can restart when the waters recede. The lag time is usually around 6-8 weeks before the onset of increased malaria or dengue transmission.
4. **Malnutrition and communicable diseases.** The combination of malnutrition and communicable diseases creates the potential for a significant public health problem, particularly in infants and children. Malnutrition compromises natural immunity, leading to more frequent, severe and prolonged episodes of infections. Severe malnutrition often masks symptoms and signs of communicable diseases, making prompt clinical diagnosis and early treatment more difficult.
5. **Disruption of critical services** is of immediate concern, including the damage to infrastructure and the disruption of the health, social and security networks caused by flooding. This can prevent access both to the usual services as well as to the emergency medical, surgical and obstetric services put in place in response to this emergency.

2. PRIORITY DISEASES

2.1 Wounds and Injuries

Wounds and injuries are frequently associated with the immediate post-flooding period due to navigating floodwaters, displacement of hazards, or from near-drowning. Survivors of near-drowning may have complications such as aspiration pneumonia. Injuries may also result from being swept by floodwaters through collapsed structures and debris. The management of all injuries may be complicated by delays in presenting for care and limited access of skilled personnel to the affected areas. Although vaccination coverage is relatively high among one year-old children (DTP3 88% at one year; national figures reported to WHO for 2006), waning tetanus immunity in adults increases the likelihood of morbidity and mortality from **tetanus**. (For management of wounds see section 3.4 *Essential medical and surgical care*. For additional information, see section 4, *Wounds and injuries*.)

2.2 Water/sanitation/hygiene-related and foodborne diseases

The populations affected by flooding in the Philippines are at **increased risk** from outbreaks of water/sanitation/hygiene-related and foodborne diseases, particularly **cholera, typhoid fever, and shigellosis** due to *Shigella dysenteriae* type 1 (**Sd1**). There is increasing evidence of significant antimicrobial resistance, including multi-drug resistance (resistance to more than three antimicrobials), highlighting the need to conduct antibiotic sensitivity testing. (For additional information, see section 4, *Diarrhoeal diseases*.)

Usual water sources can become unsafe for drinking for several reasons: the incursion of floodwaters, faecal contamination caused by overflow of latrines, inadequate sanitation and upstream contamination of interconnected water sources. Population displacement, crowding, poor access to safe water, inadequate hygiene and toilet facilities, and unsafe practices in handling and preparing food are all associated with transmission.

Cholera, typhoid fever and shigellosis as well as **Hepatitis A** are endemic and transmission risk is increased in populations affected by the flooding. (For additional information, see section 4, *Hepatitis*.)

Leptospirosis is a bacterial zoonosis present worldwide. It appears to be increasing in all regions, especially as an urban hazard during heavy rains and floods. Infection in humans may occur indirectly when the bacteria come into contact with the skin (especially if damaged) or the mucous membranes. It can also result from contact with moist soil or vegetation that is contaminated with the urine of infected animals, or with contaminated water as a result of swimming or wading in floodwaters, accidental immersion or occupational abrasion. Infection may also occur from direct contact with the tissues or urine of infected animals and occasionally through ingesting food contaminated with urine of infected animals or from droplet aerosol inhalation of contaminated fluids. Increased risk is associated with flooding and the crowding of rodents, wild and domestic animals and humans on shared dry ground. Outbreaks of leptospirosis have occurred in the past in flooded areas of the Philippines.

2.3 Vector-borne diseases

Dengue / dengue haemorrhagic fever (DHF) is a viral disease transmitted by the *Ae. aegypti* mosquito which is endemic in the Philippines. Dengue causes a severe influenza-like illness. A potentially lethal complication called dengue haemorrhagic fever can sometimes occur. Epidemics of dengue occur cyclically every 3-5 years. Its epidemiology is rapidly evolving, with outbreaks occurring more frequently and expanding to new geographical areas that were previously unaffected. Mortality is highest during the initial period of the outbreak or epidemic. Children are at a particularly high risk of mortality as a result of complications and lack of access to prompt treatment.

In 2008, epidemic dengue in the Philippines resulted in 39 620 cases and 373 deaths. In 2009 there have been fewer cases reported, most from the National Capital Region.

Health personnel should expect an increase in cases and should be able to recognize the early features of the disease. Supportive treatment supplies should be stockpiled. Early detection and treatment of DHF can reduce the CFR from 20% to <1%.

DHF can affect all age groups. The risk of transmission may increase 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. (For additional information, see section 4, *Dengue*).

Malaria is the eighth leading cause of morbidity in the Philippines. Malaria cases nationwide are reported from 65 of the 79 endemic provinces, 26 of which are highly endemic, reporting approximately 96% of malaria cases. These areas are among the poorest in the country and have a high percentage of indigenous peoples. These areas report significantly higher deaths caused by malaria and face challenges of access to health care for prompt and effective treatment and shortages of antimalarial drug supplies, especially in the peripheral health centres. The majority of epidemics (80%) occur in 21 provinces, located in Luzon and Mindanao.

Malaria risk exists throughout the year in many areas below 600 m. No risk is considered to exist in urban areas or in the plains. The following 22 provinces are considered free of malaria: Aklan, Albay, Benguet, Bilaran, Bohol, Camiguin, Capiz, Catanduanes, Cavite, Cebu, Guimaras, Iloilo, Northern Leyte, Southern Leyte, Marinduque, Masbate, Eastern Samar, Northern Samar, Western Samar, Sequijor, Sorsogon, Surigao Del Norte and metropolitan Manila.

Plasmodium falciparum is responsible for 70% of malaria cases in the Philippines, and 30% are due to *P. vivax*. *P. malariae* is responsible for <1% of the total malaria cases. *P. falciparum* resistant to chloroquine and sulfadoxine-pyrimethamine has been reported.

Displaced populations will be at an increased risk of malaria with the extension of vector breeding sites that have resulted from storm damage and flooding. (For additional information, see section 3.4, *Case management*).

Japanese encephalitis is present in South-East Asia and can affect all age groups. It is transmitted by the *Culex* mosquito which tends to breed in flooded rice fields. The virus circulates in *Ardeidae* birds (herons, egrets). Pigs are amplifying hosts. Culicines are normally zoophilic (feed mainly on animals) but feeding on humans can occur and is associated with an explosive increase in the mosquito population which occurs after flooding. (For vector control methods and personal protection information, see section 3.7).

Filariasis is a mosquito-borne parasitic disease causing swelling of the limbs, urogenital organs, breast etc. with long-term disability. It is endemic in the southern provinces of the Philippines, but not in the areas most affected by flooding. Control programmes, with national elimination goals, are in operation.

2.4 Diseases associated with crowding

Population displacement caused by flooding can result in overcrowding in resettlement areas, raising the risk of transmission of certain communicable diseases. **Measles** (see section below on vaccine-preventable diseases), **ARI**, **diphtheria** and **pertussis** are transmitted from person to person through respiratory droplets, and the risks are increased in situations of forced relocation to shared areas which are overcrowded and have inadequate ventilation. **Pandemic influenza A (H1N1) 2009** is also present and transmission is associated with crowding (see below). Overcrowding can also increase the likelihood of transmission of meningitis, waterborne and vector-borne diseases.

ARI. Acute respiratory infection includes any infection of the upper or lower respiratory system. A major concern is acute lower respiratory (ALRI) tract infection (pneumonia, bronchiolitis and bronchitis) in children under five. ARLI kills more children globally than any other disease. WHO estimates that 13% of under five deaths in the Philippines are caused by pneumonia. Low birth weight, malnourished and non-

breastfed children and those living in overcrowded conditions are at higher risk of acquiring pneumonia.

These children are also at a higher risk of death from pneumonia. Prevention is key. Early recognition and detection, immunization (measles, Hib and pneumococcal conjugate vaccines), adequate nutrition and exclusive breastfeeding can all help to reduce infection rates. Infants of less than six months of age, who are not breastfed, have an increased risk of dying from pneumonia that is five times higher than in infants who are exclusively breastfed for the first six months.

Early detection and case management of pneumonia and other common illnesses, guided by the Integrated Management of Childhood Illness (IMCI), will prevent unnecessary morbidity and mortality in children under five years of age. It is recommended that trained health care workers refer to the national IMCI guidelines during and after the emergency.

Pandemic influenza A (H1N1) 2009 is currently circulating in the Philippines. It is transmitted from person to person as easily as normal seasonal flu by exposure to infected droplets expelled by coughing or sneezing or via contaminate hands or surfaces.

Signs of pandemic (H1N1) 2009 are influenza-like illness, including fever, cough, headache, muscle and joint pain, sore throat and runny nose, and sometimes vomiting and diarrhoea. People who are ill should be encouraged to cover their mouth and nose when coughing or sneezing, to stay home when they are unwell and clean their hands regularly. Crowding should be reduced as much as possible. Early treatment with antiviral drugs – oseltamivir and zanamivir – is important, especially for patients who are at increased risk of developing complications, those who present with severe illness or those with worsening signs and symptoms. Antiviral drugs should be administered as soon as possible for patients who present with severe illness or whose condition begins to deteriorate. Antiviral treatment is most effective when prescribed within the first 48 hours after symptom onset. Patients who are otherwise healthy, who do not have underlying medical conditions and are with uncomplicated illness need not be treated with antivirals.

Meningococcal disease is spread from person to person through respiratory droplets from infected people. Transmission is facilitated by close contact and crowded living conditions. In 2004 and early 2005, WHO assisted with the response to an outbreak caused by meningococcus serogroup A involving 98 cases (74 from Baguio City, 22 from Mt. Province and 2 from Ifugao) and resulting in 32 deaths (case fatality ratio, 33%).

Tuberculosis (TB) is still among the leading causes of morbidity and mortality. The Philippines has the ninth highest TB incidence in the world and the second highest in the Western Pacific Region. In 2007, the estimated number of TB cases was 255 000 with an incidence of 290 cases per 100 000 population. The TB burden is disproportionately high among the poor, the elderly and the male population, although the death rate is highest among older persons.

Mortality rate from all forms of TB was 41/100 000 population in 2007. Among new cases, 0.1% are **HIV** positive. The estimated prevalence of MDR among all new cases is 4%.

In an attempt to control TB, the Philippines has adopted the internationally recommended Stop TB Strategy. The core of this strategy is DOTS. DOTS services are provided through the network of the National TB Programme (NTP) and are reportedly available in all health facilities (100% population coverage). The case detection rate of smear-positive TB cases was 75% in 2007 and the treatment success rate was 88% in 2006.

In the acute phase of this emergency, the potential interruption to anti-TB treatment services 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 NTP services. Other aspects of TB control can be addressed once emergency and basic health care have been re-established. Pages 95 to 97 of the guideline *TB care and control in refugee and displaced populations* highlights the TB control issues that should be considered in situations of natural disasters (see section 4, *Tuberculosis*).

2.5 Vaccine-preventable diseases and routine immunization coverage

Measles. The Philippines continues to report sporadic cases and outbreaks of measles, despite relatively high levels of vaccine coverage. Reports from the national authorities, WHO and UNICEF indicate 86% measles vaccine coverage among one year old children (2008). However, overcrowding increases the risk of measles transmission even among highly vaccinated populations.

Among the 244 laboratory-confirmed and epidemiologically-linked measles cases that occurred from January to August 2009, 133 were from Metro Manila. During the current episode of flooding, suspected cases of measles have been reported from evacuation centres and an initial measles vaccination response has been instituted. Current recommendations are to conduct non-selective flood-response measles immunization with vitamin A supplementation for **all children 6-59 months old** in evacuation centres (See section 3.6 for recommendations on immunization).

Tetanus has a high case-fatality rate of 70–100% without medical treatment and is globally under-reported. The incubation period is usually three to 21 days. A shorter incubation period is associated with severe disease and a worse prognosis. Reports from the national authorities, WHO and UNICEF indicate an 86% Diphtheria– tetanus– pertussis, 3rd dose (DTP3) coverage (2008) among one year old children in The Philippines.

Appropriate management of injured survivors should be implemented as soon as possible to minimize future disability and to avert avoidable death following disasters. All wounds and injuries should be scrutinized as *Clostridium tetani* spores, present in the soil, can infect trivial, unnoticed wounds, lacerations and burns. Health-care workers operating in disaster settings should be alerted by the occurrence of cases of dysphagia and trismus, often the first symptoms of the disease.

In circumstances of poorly treated trauma, wounds and injuries should be viewed with a high level of suspicion. Appropriate management of injured survivors should be implemented as soon as possible to minimize future disability and to avert avoidable death. Patients should systematically receive prophylactic antibiotics and tetanus toxoid vaccine if non-immune, together with tetanus immune globulin if the wound is tetanus-prone.

(For case management, see section 3.4, *Essential medical and surgical care*; for additional information, see section 4, *Tetanus; Wounds and injuries*.)

Polio. No cases of polio have been reported since 1993, and the country was declared polio-free in 2000.

Table 1. Routine vaccination coverage at one year of age, 2008, the Philippines

Antigen	% coverage*
(BCG) bacille Calmette–Guérin	88
Diphtheria– tetanus– pertussis, 3rd dose	86
Hepatitis B, 3rd dose	83
MCV (measles-containing vaccine)	86
Polio, 3rd dose	86

* Official country estimates reported to WHO/UNICEF, 2008

2.6 Other risks and considerations

Noncommunicable diseases (NCDs) are recognized as a major health concern in the Philippines given its maturing population profile. Chronic conditions, including cancer, cardiovascular diseases, diabetes, chronic respiratory disease and neuropsychiatric disorders, account for an increasing proportion of the

disease burden. This group of diseases places a substantial burden on health services and an impoverishing drain on families and communities. The priorities during the acute phase of this emergency are to minimize treatment interruptions.

Malnutrition is a problem in certain areas of the Philippines, particularly for children between 6 and 24 months. Under-nutrition is an important underlying factor contributing to childhood mortality rates, and has also been linked to impaired cognitive development. Up to 33% of children age <5 years are considered mildly or moderately stunted. Anaemia in pre-school children is considered to be a moderate public health problem. In 2003, only 33% infants less than 4 months old were breastfed.

The flood-affected populations are at an increased risk of moderate and severe acute malnutrition especially in vulnerable groups such as young children, pregnant and lactating women and older persons. This risk is linked to lack of access to appropriate and adequate food, and to reduced access to health and nutrition services.

Additionally, the risk may be increased by donations of infant formula and other breast-milk substitutes that can increase morbidity and mortality in infants and young children. DoH has issued a statement reiterating the ban on donations of infant formula to evacuation centres, emphasizing the particular dangers associated with formula and the lifesaving benefits of breastfeeding in these circumstances.

Nutritional needs among the flood-affected populations must be addressed urgently. (For additional information, see section 4, *Malnutrition*)

Skin infections occur not only due to overcrowding but also as a result of a lack of water and reduced hygiene. Infestations (e.g. scabies, lice – associated with typhus) are also common and require treatment once they occur.

Sexually transmitted infections (STIs) including human immunodeficiency virus (HIV). During emergencies, vulnerable people may be subjected to situations that substantially increase their exposure to STIs, including HIV. Risk factors include massive displacement of people from their homes, women and children left to fend for themselves, prevalence of domestic violence, social services overwhelmed or destroyed, and a lack of means to prevent HIV infection, such as clean needles, safe blood transfusions and availability of condoms.

The overall prevalence in the population of the Philippines is relatively low, with 8 300 people estimated to be living with the virus (UNAIDS, WHO 2005). The emergency response should ensure a minimum package of HIV prevention, treatment and care services, including the strengthening of standard precautions, with the provision of gloves, sterile needles and syringes, and safe waste disposal management in health services. Additional services should include provision of condoms, education and prevention messages, and post-exposure prophylaxis for occupational exposure and survivors of rape. Needle and syringe exchange programmes should be maintained. Efforts should be made to ensure that HIV/AIDS patients receiving antiretroviral treatment (ART) do not have their treatment interrupted and that ART is provided for the prevention of mother-to-child transmission of HIV. (For additional information, see section 4, *Gender and Gender-based violence and HIV/AIDS*).

Key reproductive health interventions should prioritize safe delivery, acute care of the newborn and family planning. These interventions are critical components of the Minimal Initial Service Package (MISP) for reproductive health, which is currently recommended for implementation in the acute phase of an emergency. (For additional information, see section 4, *Reproductive Health in Emergencies*)

Environmental risks may exist from damaged industrial facilities (chemical, radiological). Health workers should look out for patients' symptoms that may be consistent with such causes.

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. (For additional information, see section 4, *Environmental health in emergencies, UNEP/OCHA Environmental Risk Identification*).

Corpses. It is important to convey to all parties that corpses do not represent a public health threat, however those involved in the collection and burial of bodies should follow *Standard Precautions*. (For additional information, see section 4, *Management of dead bodies*).

Interrupted power supply. As a result of extended power supply interruption, food is likely to have been spoiled and could become a possible source of disease if consumed. Routine vaccine stocks and the cold chain are also likely to have been compromised.

Drug donations. Inappropriate donations of medicines and medical supplies can be minimized by donors adhering to the interagency guidelines (for additional information, see section 4, *Drug donations*). In general, the key principles are :

- drug donations should not be a priority;
- donated drugs should explicitly address the expressed official needs of the recipient country;
- 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.

The DoH has existing specific guidelines addressing drug donations (See section 4, *Drug donations*)

Disposing of pharmaceuticals should be by high temperature incineration (i.e. above 1200°C). Such incineration facilities, equipped with adequate emission control, are mainly found in the industrialized world. The cost of disposing of hazardous waste in this way ranges from US\$ 2000 to US\$ 4000 per ton.

Staff health. (See Section 6)

3. Specific priority interventions for immediate implementation

Table 2. Immediate priorities

<ul style="list-style-type: none">• Provision of sufficient and safe water, and sanitation.• Shelter and site planning• Malnutrition management• Ensuring access to care and proper case management• Communicable disease surveillance and response, including outbreak preparedness• Immunization• Vector control and personal protection• Risk communication

3.1 Water and sanitation

Ensuring uninterrupted provision of safe drinking-water is the most important preventive measure in reducing the risk of outbreaks of waterborne diseases.

- UNHCR, WHO and SPHERE recommend that each person be supplied with **at least 15–20 litres** of clean water per day.
- **Chlorine is the most widely available and easily used**, and the most affordable of the drinking-water disinfectants. It is also highly effective against nearly all waterborne pathogens.
 - 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 free chlorine in the water should be 0.5 mg/litre, which can be determined by using a simple field test kit.
- The provision of appropriate and sufficient water containers, cooking pots and fuel can reduce the risk of cholera and other diarrhoeal diseases by ensuring that water storage is protected and that food is properly cooked.
- Key messages on hygiene should be promoted to sensitize communities to the relevant health risks.
- In addition, **adequate sanitation facilities** should be provided in the form of latrines or designated defecation areas.

3.2 Shelter and site planning

- Wherever possible, shelters for the displaced or homeless must be positioned with sufficient space between them and, in accordance with international guidelines (UNHCR), aimed at preventing diseases related to overcrowding or lack of ventilation, such as measles, ARI, diarrhoeal diseases, TB and vector-borne diseases.
- In shelter sites and during food distribution, particular attention and protection should be given to women, the elderly, unaccompanied minors and those with disabilities. Women should be included in planning and implementation of shelter and food distribution activities.
- Waste should be disposed in a pit, away from shelters and protected from rodents to reduce the exposure of the population to rodents and other vectors of disease.
- Shelters should be equipped with long-lasting insecticidal nets (LLIN) for each sleeping space to prevent malaria transmission. Where housing conditions allow, indoor residual spraying (IRS) can be carried out if >85% IRS coverage of dwellings in the locality can be assured.
- Distribution of non-food items: e.g. blankets, water containers, cooking materials, etc.

3.3 Management of malnutrition

- Infants should normally start breastfeeding within one hour of birth and continue breastfeeding exclusively (with no food or liquid other than breast milk, not even water) until 6 months of age. The aim should be to create and sustain an environment that encourages frequent breastfeeding for children up to 2 years of age. Infants who are not breastfed are vulnerable to infection and diarrhoea. (For additional information, see section 4, *Malnutrition*).
- Exclusive breastfeeding should be encouraged. Milk powder supplies usually increase in emergency situations, which tends to further exacerbate the low percentage of exclusive breast feeders. Only infants who have no access to breast milk require an adequate supply of appropriate breast milk substitutes. In those cases, health care providers including mothers should be provided with guidance on the safe preparation of powdered infant formula products.
- Many adults will have been or will now also be of borderline nutritional status, and given that diarrhoeal disease will further compromise this, attention must be paid not only to the equitable distribution of food, but also to maintaining adequate nutrition of nursing mothers.
- Bacterial infections are very common in severely malnourished children on initial admission to hospital. Clinical management of severely malnourished patients, including fluid management, must be thorough, carefully monitored and supervised. Common problems encountered in severe malnutrition include hypothermia, hypoglycaemia, dehydration and electrolyte disturbances. It is important that the phases and principles of management of severely malnourished children are followed as outlined in WHO guidelines. (For additional information, see section 4, *Malnutrition*).
- Populations dependant on food aid need to be given a food ration that is safe and adequate in terms of quantity and quality (covering macro- and micro-nutrient needs). Infants from 6 months onwards and older children need hygienically prepared, and easy-to-eat, digestible foods that nutritionally complement breast milk. Regular assessments of households' access to food (including market prices) need to be undertaken and emergency food aid needs to be adapted accordingly. Households' access to facilities for the safe preparation of their food should also be assessed on a regular basis and emergency supplies of necessary utensils and appropriate energy sources for cooking should be adapted accordingly.
- After the acute phase of the emergency, efforts should be made to improve household access to food in a more sustainable way (e.g. seed distribution, land/crop management, income generation activities) and to institute appropriate child-feeding and caring practices, including diversifying diets and improved hygiene. It is important to emphasize that poor hand hygiene exacerbates the spread of diarrhoeal diseases, even in the presence of adequate nutrition.

3.4 Case management

Good case management is predicated on ensuring access to care. Access to health clinics for the affected population is critical, including case management protocols and medications/material to treat likely high-burden conditions (trauma/wounds, communicable and non-communicable diseases, emergency reproductive health services).

Essential medical and surgical care

- Priority must be given to providing emergency medical and surgical care to people with **injury-related conditions** which account for many of the health-care needs among those requiring medical attention in the immediate aftermath of the event. Falling structures have inflicted crush injuries, fractures, and a variety of open and closed wounds. Appropriate medical and surgical treatment of these injuries is vital to improving survival, minimizing future functional impairment and disability and ensuring as full a return as possible to community life. In order to prevent avoidable death and disability, field health personnel dealing with injured survivors should observe the following basic principles of trauma care. (For additional information, see section 4, *Tetanus; Wounds and injuries, Integrated Management of Essential and Emergency Surgical Care*).
- Patients should be **categorized by severity** of their injuries and treatment prioritized in terms of available resources and chances for survival. The underlying principle of triage is allocation of resources in a manner ensuring the greatest health benefit for the greatest number.
- **Open wounds must be considered as contaminated** and should not be closed. Debridement of dead tissue is essential which, depending on the size of the wound, may necessitate a surgical procedure undertaken in appropriate (e.g. sterile) conditions. Any associated involvement of organs, neurovascular structures, or open bone fractures will also necessitate appropriate surgical care.
- After debridement and removal of dead tissue and debris, wounds should be dressed with sterile dressings and the patient scheduled for **delayed primary closure**.
- Patients with open wounds should receive tetanus prophylaxis (vaccine and/or immune globulin depending on vaccination history). Antibiotic prophylaxis or treatment will likely be indicated. (For additional information, see section 4, *Wounds and injuries, Prevention and management of wound infections*).
- Wherever possible, search and rescue workers should be equipped with **basic protective gear** such as footwear and leather gloves to avoid puncture wounds.
- **HIV post-exposure prophylaxis (PEP)** kits should be available to health-care workers, rescue and safety workers in case of accidental exposure to contaminated blood and body fluids.

Case management of communicable diseases

- Heightened community awareness of the need for **early treatment** and reinforcement of **proper case management** are important in reducing the impact of communicable diseases. The use of **standard treatment protocols** in health-care facilities with agreed-upon first-line drugs is crucial to ensure effective diagnosis and treatment for ARI, the main epidemic-prone diseases (including cholera, dysentery, shigellosis, typhoid, dengue and DHF, hepatitis, leptospirosis, measles, malaria, and meningitis) and STIs.
- Standard **infection control practices** in accordance with national protocols should also be in place.
- **Malaria treatment:**
 - Uncomplicated-unconfirmed: Artemether-Lumefantrine;
 - Laboratory-confirmed: Artemether-lumefantrine + Primaquine;
 - Treatment failure: Quinine + Tetracycline as for severe cases
 - Plasmodium vivax*, usually Chloroquine + Primaquine (14 days).

- **Tetanus:** appropriate management of injured survivors should be implemented as soon as possible to minimize future disability and to prevent avoidable death following disasters.
- Provision of **anti-TB** treatment must be ensured for TB patients who were previously receiving treatment in the affected areas. Their treatment must not be interrupted and should be provided in line with the directives of the national TB control programme (NTP) services. All aspects of TB case management should also follow the NTP directives. The drugs used to treat the disease, such as rifampicin or streptomycin, must not be used for the treatment of other illnesses.
- Efforts should be made to ensure that **HIV/AIDS** patients receiving antiretroviral treatment (ART) do not have their treatment interrupted and that ART is provided for the prevention of mother-to-child transmission of HIV.

Noncommunicable diseases

- **Snake-bite management**

First aid treatment

- Reassure the victim who may be very anxious
 - Immobilize the bitten limb with a splint or sling (any movement or muscular contraction increases absorption of venom into the bloodstream and lymphatics).
 - Consider pressure-immobilization for venomous bites.
 - Avoid any interference with the bite wound as this may introduce infection, increase absorption of the venom and increase local bleeding.
 - (For additional information, see section 4, *Snake bites*)
- **Chronic conditions:** continuation of treatment for those on medications for chronic conditions including hypertension, diabetes, cancer, and kidney disease. Where feasible, decentralization of care will increase treatment coverage given the restrictions on movement.
 - **Mental health and psychosocial support:** psychological and social considerations should be taken into account in provision of general health care. Psychological first aid should be given to people with severe, acute anxiety and continued access to care should be assured for people with severe mental disorders.

Reproductive health services

- **Access to emergency reproductive health services and implementation of the Minimum Initial Service Package (MISP) for Reproductive Health**
 - A lead agency for reproductive health should be identified along with a reproductive health officer to ensure coordination, communication, and collaboration in MISP implementation.
 - Measures should be put in place to prevent sexual violence and to respond to the needs of victims of sexual violence.
 - HIV transmission should be prevented.
 - Excess maternal and newborn morbidity and mortality should be prevented.
 - Plans should be put in place for the transition to comprehensive reproductive health services.
 - (For additional information, see section 4, *Reproductive Health*)

3.5 Surveillance/early warning and response system

The purpose of the surveillance/early warning and response system is to detect disease outbreaks. Rapid detection of cases of epidemic-prone diseases is essential to ensure rapid control. The surveillance/early warning and response system should:

- focus on the **priority epidemic-prone communicable diseases** most likely to occur in the disaster-affected population;
- be simple to use, uniform in style and include **standard case definitions** and reporting forms (for

WHO case definitions, see section 5) for detection of *acute watery diarrhoea*, *acute bloody diarrhoea*, *measles*, *acute respiratory infection*, *malaria*, *jaundice syndrome*, *meningitis*, *tetanus*, *unexplained fevers*, *unexplained cluster of events*;

- include an **alert system** for immediate reporting and prompt investigation of priority epidemic-prone diseases such as *cholera*, *bloody diarrhoea*, *measles* and *DHF*;
- include **outbreak preparedness**, with development of specific outbreak response plans and adequate stockpile of supplies such as ORS, Ringer's Lactate and doxycycline for cholera, ciprofloxacin for Sd1, amoxicillin and vitamin A for measles, Coartem™ for malaria, iv solutions and specific medicines for DHF management, as well as outbreak investigation kits;
- complement **existing surveillance structures**;
- 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;
- ensure that data is forwarded to the local health authorities and the WHO office.

3.6 Immunization

- In evacuation centres or other crowded settings, vaccination using a **measles-containing vaccine**, together with **vitamin A**, should be an immediate priority health intervention (at least 20% of children are vitamin A deficient). Children aged 6 months to 59 months (susceptibility profile based on prior coverage through routine and supplementary immunization activities and immunity gaps identified through prior measles surveillance) should receive the measles vaccine, regardless of previous vaccination or disease history. Infants 6-11 months should receive 100 000 IU of vitamin A and children 12-59 months should receive 200 000 IU of vitamin A. Re-vaccination of infants who received their first dose of measles vaccine at 6-8 months of age is recommended once they reach 9 months; the minimum interval between doses is one month.
- A single suspect measles case is sufficient to prompt the immediate implementation of activities to control measles.
- If rubella transmission is detected, consideration should be given to vaccinating women of childbearing age (aged 15-35 years). The vaccine of choice is **combined measles–rubella vaccine**.
- Given the threat of reintroduction of **poliomyelitis** into the area, every opportunity should be taken, if feasible, to give **OPV** (oral poliovirus vaccine) to all children aged <5 years.
- 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.
- **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. Wounds or lacerations may occur from objects submerged in floodwaters. Tetanus vaccine (TT or Td) AND tetanus immune globulin (TIG) is indicated for those with open wounds/lacerations who have never been vaccinated. TIG is indicated for previously vaccinated people who sustain wounds/lacerations (e.g. clean-up workers) depending on their tetanus immunization history.
- **Typhoid vaccination**, in conjunction with other preventive measures, may be useful to control typhoid outbreaks depending on local circumstances.
- **Oral cholera vaccines (OCV)**. The decision to use OCV in emergency-affected populations should be guided using a WHO risk assessment tool. However, current recommendations state that OCV should not be used once an outbreak has started or if basic public health priorities are not covered. (For additional information, see section 4, *Diarrhoeal diseases*).
- Special attention should be paid to the safe management and disposal of waste from immunization activities to prevent the transmission of bloodborne pathogens.

3.7 Vector control and personal protection

- Long-lasting insecticidal nets (LLIN), should be made universally available, with priority given to pregnant women and children aged <5 years.
- Refuse must be collected and appropriately disposed of to discourage rodent vector breeding.

- Water storage containers should be enclosed or covered with mosquito-proof lids.

3.8 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.

The five key principles of WHO Outbreak Communication Guidelines are:

1. **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.
2. **Announce early** – proactive communication of a real or potential health risk is crucial in alerting those affected.
3. **Transparency** – maintaining the public's trust throughout requires ongoing transparency, including timely and complete information of a real or potential risk and its management.
4. **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.
5. **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.

Specific messages:

Safe water

- Even if it looks clear, water can contain germs. Under the present emergency in the Philippines, water in the affected areas should be assumed to be contaminated.
- Add drops of chlorine to the water, or boil, before drinking or using for food preparation.
- Keep drinking-water in a clean, covered pot or bucket or other container with a small opening and a cover. It should be used within 24 hours of collection.
- Pour the water from the container – do not dip a cup into the container.
- If dipping into the water container cannot be avoided, use a single cup or other utensil with a handle and which is attached to the container.

Promote good hygienic practice

- Wash hands with soap, ash or lime:
 - before cooking, before eating and before feeding children;
 - after using the latrine or cleaning children after they have used the latrine;
 - wash all parts of hands – front, back, between the fingers and under the nails.

Avoid mosquito bites

- Sleep under an insecticide-treated bednet.
- Make sure your house or tent/shelter has been properly sprayed with insecticide during the transmission season.
- Wear protective clothing at times when mosquitoes and other biting insects are active.
- Stay indoors when outdoor biting mosquitoes are most active.
- Use insect repellents and mosquito coils if available.
- Remove, destroy or empty small rain-filled containers near the house or tent/shelter.

Five keys to safer food

- Keep clean (hand hygiene)
- Separate raw and cooked
- Cook thoroughly
- Keep food at safe temperature (piping hot)

- Use safe water and raw materials

Seek treatment early

- Diagnosis and treatment of fever, diarrhoea and other illnesses should be within 24 hours from observation of first signs of symptoms.
- For diarrhoea, oral dehydration salts made with safe (boiled and chlorinated) water should be consumed.

4. INFORMATION SOURCES

WHO headquarters/WHO Regional Office for Western Pacific Region (WPRO)

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

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

Communicable Disease Surveillance and Response, WHO/WPRO

<http://www.wpro.who.int/sites/csr/overview.htm>

Health Action in Crises (HAC), 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 of children (WHO, 2005)

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

Dengue

Dengue haemorrhagic fever: diagnosis, treatment, prevention and control, 2nd ed. (WHO 1997)

<http://www.who.int/csr/resources/publications/dengue/Denguepublication/en/print.html>

[forthcoming - Dengue: Guidelines for diagnosis, treatment, prevention and control. Third edition (WHO 2009)]

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: early recognition, diagnosis and hospital management an audiovisual guide for health-care workers responding to outbreaks.

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

Diarrhoeal diseases

Acute diarrhoeal diseases in complex emergencies: critical steps.

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

Cholera outbreak: assessing the outbreak response and improving preparedness

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

First steps for managing an outbreak of acute diarrhoea.

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

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

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

Oral cholera vaccine use in complex emergencies: What next? Report of a WHO meeting. Cairo, Egypt, 14–16 December 2005. [pdf-3200kb]

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

Background document: the diagnosis, treatment, and prevention of typhoid fever (WHO, 2003) [pdf-230kb]

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

Drug donations

Guidelines for Drug Donations (WHO, revised 1999) [pdf-270kb]

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

Republic of the Philippines, Dept of Health. Guidelines on the Acceptance and Processing of Foreign and Local Donations During Emergency and Disaster Situations

<http://209.85.135.132/search?q=cache:a24AAmAPI9sJ:www.philippine-embassy.org.sg/Download.cfm%3FDPID%3D232%26DObjID%3D139%26FN%3D/ao2007-0017.pdf+drug+donation+policy,+DOH,+Philippines&cd=2&hl=de&ct=clnk&gl=ch>

Environmental health in emergencies

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

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>

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>

Gender & gender-based violence

IASC Guidelines for Gender-based Violence Interventions in Humanitarian Settings (2005) [pdf-1900kb] Arabic, English, French, bahasa, Spanish

http://www.humanitarianinfo.org/iasc/content/products/docs/tfgender_GBVGuidelines2005.pdf

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

IASC Gender Handbook in Humanitarian Action Women, Girls, Boys and Men Different Needs – Equal Opportunities (2006) [pdf-3200kb]

[http://www.humanitarianinfo.org/iasc/content/documents/subsidi/tf_gender/IASC%20Gender%20Handbook%20\(Feb%202007\).pdf](http://www.humanitarianinfo.org/iasc/content/documents/subsidi/tf_gender/IASC%20Gender%20Handbook%20(Feb%202007).pdf)

<http://www.humanitarianinfo.org/iascweb2/pageloader.aspx?page=content-products-products&productcatid=3>

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

http://www.who.int/reproductive-health/publications/clinical_mngt_rapesurvivors/

<http://www.who.int/reproductivehealth/publications/emergencies/924159263X/en/>

Hepatitis

Hepatitis A

<http://www.who.int/csr/disease/hepatitis/whocdscsredc2007/en/>

Hepatitis E

<http://www.who.int/csr/disease/hepatitis/whocdscsredc200112/en/>

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

HIV/AIDS

Guidelines for HIV/AIDS interventions in emergency settings: Inter-Agency Standing Committee (IASC) guidelines

www.who.int/3by5/publications/documents/iasc/en/

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/

Leptospirosis

http://www.who.int/water_sanitation_health/diseases/leptospirosis/en/

Malaria

Global Malaria Programme: Epidemics and emergencies

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

Guidelines for the treatment of malaria (WHO, 2006)

<http://www.who.int/malaria/docs/TreatmentGuidelines2006.pdf>

Malaria control in complex emergencies. An inter-agency field handbook (WHO, 2005) [pdf-1500kb]

http://www.who.int/malaria/docs/ce_interagencyfhbook.pdf

Malnutrition

Communicable diseases and severe food shortage situations (WHO, 2005) [pdf-250kb]

http://www.who.int/diseasecontrol_emergencies/guidelines/Severe_food_shortages.pdf

The management of nutrition in major emergencies.(WHO, 2000) [pdf-12 800kb]

<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) [pdf-870kb]

<http://www.enonline.net/pool/files/ife/ops-guidance-2-1-english-010307.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

Nutrition in emergencies publications

http://www.who.int/nutrition/publications/nut_emergencies/en/

Management of dead bodies

Management of dead bodies after disasters: a field manual for first responders (PAHO, 2006) [pdf-1100kb]

<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 [pdf-640kb]

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

WHO Measles Vaccine Position paper

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

Measles fact sheet

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

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&sui vant=16>

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

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

Mental health in emergencies

http://www.who.int/mental_health/resources/emergencies/en/index.html

IASC Guidelines on Mental Health and Psychosocial support in Emergency settings (2007) [pdf-800kb]

<http://www.humanitarianinfo.org/iasc/content/products/docs/Guidelines%20IASC%20Mental%20Health%20Psychosocial.pdf>

<http://www.humanitarianinfo.org/iascweb2/pageloader.aspx?page=content-products-products&productcatid=22>

Ministry of Health Philippines

<http://www.doh.gov.ph/>

Pandemic influenza

<http://www.who.int/csr/disease/swineflu/en/index.html>

Global Influenza Program

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

Pandemic influenza preparedness and mitigation in refugee and displaced populations. Second edition
May 2008.[pdf -550 kb]

http://www.who.int/diseasecontrol_emergencies/HSE_EPR_DCE_2008_3rweb.pdf

Polio

WHO-recommended surveillance standard of poliomyelitis

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

Reproductive Health in Emergencies

http://www.who.int/topics/reproductive_health/en/

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

http://www.searo.who.int/LinkFiles/Publications_MISP.pdf

Risk communication

WHO Outbreak Communication Planning Guide, 2008.

<http://www.who.int/ihr/eLibrary/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>

Preventing water-related diseases:

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

Snakebite

Guidelines for the clinical management of snakebite in the South-East Asia Region

http://www.searo.who.int/LinkFiles/SDE_mgmt_snake-bite.pdf

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

Integrated Management of Essential and Emergency 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>

International Travel and Health (2008)

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

Tuberculosis

Tuberculosis care and control in refugee and displaced populations. An interagency field manual (2007). [pdf-960kb]

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

Vector control

Integrated vector management

<http://www.who.int/malaria/integratedvectormangement.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) [pdf-820kb]

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

Water and Sanitation

Guidelines for drinking-water quality, third edition, incorporating first addendum

http://www.who.int/water_sanitation_health/dwq/gdwq3rev/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/en/san/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&suivant=25>

Wounds and Injuries (See also Tetanus above)

Prevention and management of wound infection [pdf-40kb]

http://www.who.int/hac/techguidance/tools/guidelines_prevention_and_management_wound_infection.pdf

Integrated Management of Essential and Emergency 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 [pdf-2254kb]

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

WHO generic essential emergency equipment list [pdf-111kb]

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

Zoonotic diseases

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

5. WHO-RECOMMENDED CASE DEFINITIONS

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

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 purpurial rash.

Confirmed case of meningococcal meningitis

Suspected or probable case, as defined above, with **either** positive-CSF antigen detection for *Neisseria meningitidis* **or** positive CSF culture or blood with identification of *N. meningitidis*.

TETANUS

Adult tetanus

Either of the following signs 3–21 days following an injury or wound:

- trismus of the facial muscles or risus sardonicus
- painful muscular contractions.

Neonatal tetanus

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

UNEXPLAINED FEVER

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

UNEXPLAINED CLUSTER OF HEALTH EVENTS

An aggregation of cases with similar symptoms and signs of unknown cause that are closely grouped in time and/or place.

6. Staff health

Vaccinations and malaria prophylaxis recommended for staff deployed to the Philippines

Emergency settings differ vastly, including their epidemiological context. It is thus essential that medical preparation is as comprehensive as possible (within the limitations imposed by departure at short notice) and tailored specifically for the Philippines.

A minimum period of time is required following vaccination, to build up protective levels of antibodies. A series of injections may be necessary. It is advised that staff receive vaccinations 2 weeks in advance of departure if possible (see table below). In the event of immediate departure, the duration of the mission may influence the choice of vaccines.

Personal protection against mosquito bites, both during the day and at night is important in preventing vector-borne diseases such as dengue, Japanese encephalitis and malaria (long-sleeved clothes, repellents, mosquito nets).

Basic knowledge of First Aid and stress management is important. Some teams may have to handle large numbers of dead bodies. The emotional overload in performing such an unusual and heavy task without specific training, can provoke significant reactions of traumatic stress and even lead to psychological trauma. Although not always avoidable, good preparation can be useful in preventing and limiting stress. (For additional information, see section 4, *Travel advice*).

A - Vaccination recommendations

NB: A Yellow Fever vaccination certificate is required from travelers coming from infected areas			
	Vaccine	Validity	Comments
Essential			
	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	If there is no proof of immunity by vaccine or illness, even if departure at short notice. Can be combined with Hepatitis B.
	Hepatitis B	15 years	
	Cholera	6 months	If there is sufficient time, 2 oral doses to be taken one week apart. Immunity is obtained 1 week after the second dose of the Dukoral™ vaccine which can provide protection from both <i>Vibrio cholerae</i> serotype O1 and ETEC (enterotoxigenic <i>E. Coli</i>).
Optional			
	Meningitis ACYW 135	3 years	No recent outbreak, but potential risk of cases in such context (prolonged mission).
	Measles		Potential risk in emergency situation. If not fully immunized in childhood, obtain vaccination.
	Japanese encephalitis		3 doses over a 30-day period (days 0, 7, 30). Systemic side effects reported in around 10% of those receiving vaccine.

B - Malaria prophylaxis and treatment

Malaria prophylaxis is recommended for all staff deployed to rural areas <600 m (<1,969 ft) on islands of Luzon, Palawan, and Mindanao. Prophylaxis is not considered necessary in urban areas. The risk is predominantly due to *P.falciparum*. The recommended drugs for prophylaxis are:

Medication	Start of treatment	Dosage
Atovaquone 250 mg & Proguanil 100 mg (Malarone)	One day before exposure	One tablet daily until 7 days after last exposure

Doxycycline 100 mg	One day before exposure	One tablet daily until 4 weeks after last exposure
Mefloquine 250 mg	One week before exposure	One tablet weekly until 4 weeks after last exposure

It is recommended that individuals carry supplies of **reserve treatment** for all missions lasting longer than 8 days, in view of the potential difficulty in accessing health services. The recommended treatment for malaria is **Artemether-Lumefantrine** combination tablet (Coartem™).

C - Other precautions

To consider for teams

- Medical kits including chlorine tablets for water purification
- PEP kit
- Surgical masks
- Gloves
- Food and water: given that there will be an extreme shortage of basic food and drinking water.