

# **Communicable disease risk assessment and interventions**

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## **Middle East crisis: Lebanon**

**July 2006**



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## Preface

The purpose of this *Communicable disease risk assessment and interventions: Middle East crisis – Lebanon* technical note is to provide health professionals in United Nations (UN) agencies, nongovernmental organizations, donor agencies and local authorities working with conflict-affected populations with up-to-date **technical guidance** on the major communicable disease threats faced by the emergency-affected populations. WHO, with the UN system, is responding to requests for assistance from Lebanon, hence the focus of this risk assessment is on this country.

A brief section on noncommunicable diseases is also included. The endemic and epidemic-prone diseases indicated have been selected on the basis of the burden of morbidity and mortality in the area, as previously documented by WHO.

The prevention and control of communicable diseases represent a significant challenge to those providing health-care services in this evolving situation. It is hoped that this technical note will facilitate the coordination of communicable disease control activities between all agencies working among the populations currently affected by the crisis.

# 1. Background

The onset of hostilities in Lebanon on 12 July 2006 has caused widespread destruction of public infrastructure, including health facilities, schools, roads, bridges, fuel stores, power stations, airports and main seaports, notably in southern Lebanon, Beirut and the Béqaa Valley. The conflict has led to major population displacement from southern Lebanon. Many of have sought shelter with host families and some of the population has also crossed borders into the Syrian Arab Republic.

## Population vulnerability profile

Lebanon is ranked <b>81</b> in the world out of 177 countries by the Human Development Index (0.759, UNDP 2005 report).	
Total population	3 577 000
Urban population out of total population (%)	85
GDP PPP per capita (\$)	3 703.6
Access to water supply (% of population)	100.0
Urban population growth rate (%)	2.1
Arable land (% of land area)	29.7
Crude birth rate per 1000 population	16.9
Crude death rate per 1000 population	4.1
Population growth rate, annually (%)	1.6
Population aged below 15 years (%)	28.4
Population aged 65 years and over (%)	6.6
Dependency ratio (%)	59
Total fertility rate (births per woman aged 15 to 44 years)	2.4
Measles vaccination coverage 2004 (%)	96
DTP3 vaccination coverage 2004 (%)	92
Baseline malnutrition rate (%)	5–10

Data sources: WHO/EMRO and UNDP, as of 18 July 2006.

## 2. Risk factors

- 1. Interruption of safe water and sanitation supplies** can lead to an increased risk of waterborne disease outbreaks, i.e. **typhoid fever, shigellosis, and hepatitis A and E** related to unsafe drinking-water and inadequate sanitation.
- 2. Population displacement with overcrowding.** Overcrowding is a risk factor for transmission of **measles, mumps, meningitis** and increased incidence of **acute respiratory infections**. There is an immediate risk of these diseases. Waterborne and vector-borne disease transmission is also increased in overcrowded conditions.
- 3. Difficult access to health services.** Where health infrastructure has been destroyed or overwhelmed, the provision of treatment for **communicable diseases, noncommunicable disease and surgery/wound care** may be limited, contributing to an increased disease burden.



## 3. Priority communicable diseases

### Waterborne and foodborne diseases

Outbreaks of waterborne and foodborne diseases could occur if safe water, adequate toilet facilities, and safe food preparation and handling practices are not ensured, particularly if people are in crowded conditions. The main disease concerns are **typhoid fever, shigellosis**, other **diarrhoeal disease pathogens** such as rotavirus, and **hepatitis (A & E)**.

From 1 January to 15 July 2006, 150 cases of **typhoid fever** and 35 cases of **food poisoning** had been reported through Lebanon's national routine surveillance system.

Cholera was last notified to WHO from the country in 1994. However there may be potential for introduction with major population displacement.

Water should be treated as contaminated, and boiled or made safe through treatment with chlorine before it is consumed or used as an ingredient in food. Safe food is particularly important for infants, pregnant women and the elderly who are most susceptible to foodborne diseases.

### Vaccine-preventable diseases

High routine immunization national coverage was attained in 2002 and 2003. However, subsequent coverage was reported to be far below the minimum recommended target of 80%, and significantly below WHO/UNICEF official estimates. A significant number of children are assumed to have been vaccinated by private health care service providers. Additionally, the frequency, regularity and coverage for vitamin A supplementation rates are unknown.

Cases of **measles, mumps, rubella, pertussis, adult and neonatal tetanus, meningitis and hepatitis B** have been reported through routine surveillance systems. Currently there is **ongoing measles transmission**, with at least **846 cases** reported to date in 2006. Available data show that children aged 6 months to 12 years and young adults are the most affected.

The last wild poliovirus case was reported in 2003.

**Summary of immunization coverage attained in Lebanon 2000–2005\***

Antigen (% coverage)*	2005	2004	2003	2002	2001	2000
BCG	–	–	–	–	–	–
Diphtheria, Pertussis, Tetanus PT3	47	–	92	92	93	90
Hepatitis B 3	47	–	88	–	–	–
<i>Haemophilus influenzae</i> type b 3	47	–	92	–	–	–
Measles–mumps–rubella, 1st dose	54	53	96	96	90	90
Measles–mumps–rubella, 2nd dose	17	–	94	94	88	87
Polio 3	48	–	92	92	93	90
Tetanus (women of childbearing age)	–	–	–	–	–	–

\*Official country estimates reported to WHO/UNICEF, as of 19 July 2006.

## Respiratory diseases

- i. The risk of **acute respiratory infections including pneumonia** may be increased, particularly in children, if populations are crowded together in camps.
- ii. The recent presence of **highly pathogenic avian influenza A (H5N1)** in poultry in the region remains of concern. Low pathogenic avian influenza A(H9N2) was reported birds of north and south Lebanon, in Mount Lebanon in the Béqaa Valley and in Beirut in October 2005, but no poultry outbreaks caused by influenza A(H5N1) have been reported from this country.

Some laboratory confirmed cases of human influenza A(H5N1) infection were reported from January to 18 May 2006 in some countries of geographical proximity with Lebanon, with a total of 20 cases (9 fatal) in Azerbaijan and Turkey and of 17 cases (8 fatal) in Djibouti, Egypt and Iraq. The date of onset in the last reported case of these two regions was 11 May 2006 (Egypt). H5N1 human infection is still rare and remains primarily acquired through contact with infected poultry.

**Cumulative number of confirmed cases of human avian influenza A/(H5N1) reported, by WHO region<sup>a</sup>**

Country (region)	2003		2004		2005		2006		Total <sup>b</sup>	
Affected	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Azerbaijan (European)	0	0	0	0	0	0	8	5	8	5
Turkey (European)	0	0	0	0	0	0	12	4	12	4
Djibouti (Eastern Mediterranean)	0	0	0	0	0	0	1	0	1	0
Egypt (Eastern Mediterranean)	0	0	0	0	0	0	14	6	14	6
Iraq (Eastern Mediterranean)	0	0	0	0	0	0	2	2	2	2
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>37</b>	<b>17</b>	<b>37</b>	<b>17</b>

<sup>a</sup> The total number of cases includes the number of deaths.

<sup>b</sup> WHO reports only laboratory-confirmed cases.

Source: [http://www.who.int/csr/disease/avian\\_influenza/country/en/index.html](http://www.who.int/csr/disease/avian_influenza/country/en/index.html)

## Zoonotic diseases

The main zoonotic diseases are **brucellosis**, **rabies** and **echinococcosis**. Brucellosis is the leading zoonotic of major concern in view of its impact on both public health and animal production schemes. Around 300 cases are reported annually to the Ministry of Health, but in reality the number is higher as it is the case in neighbouring countries. Rabies cases occur sporadically. Other cases of zoonotic diseases (plague, Creutzfeld–Jakob disease) are rare.

## Vector-borne diseases

The burden of vector-borne diseases (VBDs) in the region is mainly restricted to **a few countries** in the region that suffer most of the disease burden and its socioeconomic consequences. VBDs comprise 7% of all CDs in the region. In addition, VBDs in this region contribute to more than 2% of the total global burden of disease: in a region that comprises only 8% of the global population this contribution is significant.

**Leishmaniasis** is focally prevalent in the neighbouring countries of Iraq, Islamic Republic of Iran and the Syrian Arab Republic, but is a far lesser problem in Lebanon. Anthroponotic cutaneous leishmaniasis transmission is known to occur in Beirut. **Borrelioses** transmitted by several types of ectoparasites and causing numerous infections are undoubtedly widespread in the region. However, little recent information is available on their distributions in each country. Other notable vector-borne disease endemic in the region that could potentially be observed in displaced populations include **plague**, **trachoma**, **Crimean Congo Haemorrhagic Fever (CCHF)** and **arbovirus** infections.

Anopheline mosquito vectors of malaria are present in Lebanon. The successful implementation of malaria control programmes has effectively interrupted transmission of the disease. Since January 2006, only eight cases had been reported nationwide.

## Chronic communicable diseases

- i. **Tuberculosis (TB)** care is still available to the community except for the conflict-affected areas in Lebanon to date (as of 23 July). The National TB Programme (NTP) of MOH has sufficient amount of TB drugs, and are providing TB care at TB clinics in the country except in south. However, access to TB care is becoming limited. TB clinics do not open for the entire day: it opens for only 2-3 hours a day, or less. Daily observation of treatment, which is the key element of the DOTS strategy, is not possible to implement. Each TB patient receives one-month's supply of TB drugs so that patients can continue to have drugs even if the situation deteriorates further. However, the NTP may not be able to continue the provision of basic TB care if the conflict continues.

**TB burden** is not high in Lebanon. The estimated incidence of TB is 11 per 100 000 population, or around 400 cases a year. The level of multi-drug resistance (MDR) TB is also low: in 2005, only one (1) out of 131 smear positive cases of TB, was MDR. The NTP has adopted DOTS and has provided TB care at 11 TB clinics in Lebanon, developed effective collaboration with the private health sector, which account for a large share of health care delivery in Lebanon. TB patients detected in the private health sector are referred to NTP for full TB care. NTP has achieved the global targets: 82% case detection (target is 70% target), and 92% treatment success (target is 85%). In 2005, 291 TB cases were detected. The NTP has also started care for patients with MDR TB in collaboration with the Green Light Committee (GLC).

The situation of **TB care** however is of concern. Because of the ongoing crisis, many of the private doctors involved in TB control may stop their activities. Many patients are likely to have limited or no access to TB care. The NTP is providing one months supply of anti-TB drugs to each patient. However, this may not be able to be sustained.

- ii. In an emergency, populations are subjected to situations that are known to substantially increase their risk of contracting **human immunodeficiency virus (HIV)**. Massive displacement of people from their homes, 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 occur. Emergency situations can create chaotic conditions that accelerate the spread of HIV.

There is limited information on AIDS, HIV infection and sexually-transmitted infections (STIs) from Lebanon. No systematic HIV/AIDS surveillance is in place, and monitoring depends largely on passive reporting of HIV infections discovered in clinical settings or on routine screening. Many of the reported cases are among Lebanese travelling, working or residing abroad. The total cumulative number of HIV and AIDS cases detected from 1985 until mid 2005 was 750. Prevalence in the general population is reported to be less than 0.1. Of the detected cases, 42% were male aged 30–49 years; 6% occurred among injection drug users. The main mode of transmission reported among AIDS cases is heterosexual (61%). All other modes of HIV transmission have also been reported, including mother-to-child transmission (5%), injection drug users (4%) and via blood products (13%).

### *Antiretroviral therapy*

As of June 2004, the number of adults (aged 15–49 years) with advanced HIV infection receiving antiretroviral therapy (ART) in Lebanon totaled 353, of whom 200 receive ART through the national AIDS control programme (NAP) which is supported by WHO.

Government-subsidized antiretroviral drugs (ARVs) are collected by patients on a monthly basis from the central pharmacy located near the Port of Beirut, an area which has been heavily bombarded. People may fear accessing this site for collection of medications. This means that there is a high risk that many people will have run out of their treatment.

Medical treatment and follow up often takes place in the private sector and is not subsidized by the government. The majority of patients are treated by the NAP resource person for treatment strategies and protocols. Patients frequently contact nongovernmental organizations (NGOs).

Efforts should be made to ensure that HIV/AIDS patients receiving ART do not have their treatment interrupted. There should be coordination with NAP and NGOs (specialized in HIV/AIDS and Relief

NGOs) to ensure continued supply of drugs to patients on ART. Adherence support should be discussed with the involved NGOs. The high level of stigma in the country could make it difficult for people to collect/take their medicines anonymously or in privacy.

#### *Prevention of HIV transmission*

- While blood safety is well ensured, universal precautions followed by first aid staff (Lebanese Red Cross and Civil Defence) may be questioned in hospital settings according to recent knowledge, attitude, and behavioral practices (KABP) studies.
- Rapid test kits and testing guidelines may not be available in blood banks as enzyme-linked immunosorbent assay (ELISA) had been more commonly used.
- A shortage of supply of test kits and commodities for infection control and universal precautions may arise.
- PEP kits are usually available in all emergency rooms.

Possible actions should include:

- Ensuring ongoing supply of commodities, HIV post-exposure prophylaxis (PEP) and rapid test kits
- Development of a simple algorithm for HIV testing and confirmation with rapid kits, and disseminate to all blood banks and referral laboratories.

### **Diseases under routine national surveillance**

Lebanon has a well established routine disease surveillance system that produces monthly reports. These reports offer an overview of notifiable communicable diseases for the current year at national, provincial and district levels. Data are described by administrative level, month, age group and sex.

Communicable diseases (CDs) reported by the **routine surveillance** (passive) system include:

- **vaccine preventable diseases** – diphtheria, measles, meningitis, mumps, rubella, tetanus, hepatitis B, poliomyelitis, rabies, yellow fever;
- **foodborne and waterborne diseases** – brucellosis, cholera, dysentery, food poisoning, hydatid cysts, parasitic worms, trichinellosis, typhoid fever, hepatitis A.
- **other diseases (including zoonotic diseases):** bilharziasis, Creutzfeld–Jakob disease, viral haemorrhagic fevers (Ebola, Crimean–Congo haemorrhagic fever), gonorrhoea, leishmaniasis, leprosy, malaria, plague, syphilis, typhus, hepatitis C.

Importantly, Lebanon has a comparatively **higher prevalence of noncommunicable diseases (NCDs)**, in particular Diabetes Mellitus where the prevalence is almost double of that of industrialized countries. The most important of these diseases – cardiovascular diseases, cancer and diabetes – share several common, related risk factors: hypercholesterolemia, obesity and diabetes, which further increase the prevalence of NCDs in this country.

Various **interactions** between CDs and NCDs commonly result in a reciprocal increase of morbidity and mortality for both disease entities. A concerted and strategic approach is essential in order to prevent excess morbidity and mortality in the conflict-affected population.

**Table 1. Summary of current risk of communicable diseases in emergency-affected populations**

<b>Communicable disease</b>	<b>Risk</b>
Acute lower respiratory tract infections	+++
Anthroponotic cutaneous leishmaniasis	+
Cholera	+
Brucellosis	++
Borreliosis	+
Typhoid fever	++
Shigellosis	++
Influenza (seasonal)	+
Hepatitis A & E	++
HIV/AIDS/sexually transmitted infections	+
Dengue fever	negligible
Malaria	negligible
Scrub typhus	+
Measles	+++
Meningitis	++
Mumps	++
Plague	+
Pertussis	++
Rabies	+
Rubella	++
Tuberculosis	+

**Key:** += low risk      ++ = moderate risk      +++ = high risk  
 Negligible = vectors present but cases very rare

## 4. Noncommunicable diseases

**Noncommunicable diseases (NCDs)** are recognized as a major health concern in Lebanon given its older population profile. This group of diseases place a substantial burden on health services and an impoverishing drain on families and communities.

The leading cause of NCDs are **cardiovascular diseases (CVD)**. However, in the absence of national surveillance systems, epidemiological data on CVD in the country has only been obtained in indirect ways. The most recently available estimates (2000) indicate that 44.41% of the population had CVD and 15.87% had hypertension.

Lebanon has a prevalence of non-insulin dependent **diabetes mellitus** almost double that of industrialized countries, reaching **around 13%** in the adult population. Studies have also shown that there is around 6% prevalence of impaired glucose tolerance; 20–25% of the adult population suffers from high blood pressure – BP (over 165/95); around 9% of young adolescents (aged 10–14 years) had elevated BP and 18% of young adolescents were hypercholesterolemic (1992). Although data remain insufficient for decisions on interventions, attempts at determining prevalence of risks for CVD have been made in Lebanon over the past few years (1990s).

**Diabetes mellitus (DM)**, and in particular type 2 DM in middle-aged populations, seems to be a serious health problem among the **Palestinian population**. There are many undiagnosed and unregistered patients. Extrapolation from ethnogenetically similar populations of neighbouring countries in 1998 estimated the prevalence in the Gaza Strip area as:

- Type 2DM 1 743/100000 citizens, 1 627/100000 refugees, 1 685/100000 collectively.
- Type 1 DM 133.4/100000 citizens, 122/100000 refugees, 127.6/100000 collectively.

Further analysis of data available indicates a prevalence of 6.5%. Recent research studies have been conducted and data are yet to be analysed.

**Cancer** is the second most common cause of death in Lebanon after **CVD**. About 14% of all death certificates mention cancer as the primary cause of death.

### Burden of noncommunicable diseases and risk factors in Lebanon

Total	Population (000) 2004		Heart diseases 2002		Rheumatic Heart Disease	Stroke	Smoking		Diabetes Mellitus		High Blood Pressure		OW/OB Overweight t/Obesity		Cholesterol Levels	
	>20 yrs	No of deaths	No of deaths	DALY/ 1000 pop.			M	F	M	F	M	F	M	F	M	F
3596	2588	5471	17	119	2072	7	61	47	15	10	30.9	18.2	60	53	55	56

Source: WHO/EMRO, 18 July 2006

**Malnutrition** is mostly restricted to groups living in particularly difficult situations, such as the Palestinian refugees. Studies on the growth and illness patterns of Lebanese children, initiated in 1960, indicated a stable 5–10% of undernutrition (defined as low weight and height for age) in children aged under 5 years.

Data related to genetic diseases in Lebanon are scattered and insufficient. Various sources report a **high incidence of mental retardation among children**, with cases occurring in clusters and seemingly related to consanguineous marriages in certain communities.

**Other chronic conditions** of concern *that require ongoing management over a period of years include* ongoing physical impairments (**amputations, blindness and joint disorders**) and mental disorders (**depression and schizophrenia**).

## **Mental disorders**

**Baseline data** in a nationally representative sample in Lebanon (2857 adults) shows there has been relatively good **psychiatric epidemiology** on mental disorders.

- 17% of the population met the criteria of mental disorder – 4.6 % severe mental disorder; 6.1% moderate mental disorder and 6.3% mild mental disorder (percentages are 12-month prevalence rates). **The 4.6% with severe mental disorder are of the health sector's special concern , needing immediate and absolutely necessary specialized care.**
- Of all the 17% who met criteria for a mental disorder, only 10.9% received any treatment; and of the 4.6% with severe mental disorder (e.g. bipolar disorder, depression and anxiety disorders, etc) 18% received any treatment in the last year (9% in the general medical care sector, 7% by mental health specialists, and 2% by non health care sector).
- Treatment is more likely among women and high-income groups.
- Demographic risk factors for mood and anxiety disorders include: being female, middle-aged (for mood disorders), and never married. Anxiety disorder are especially much more common in Lebanese women (compared to men).
- Nearly half of the representative population had been previously exposed (before 2003) to war-related traumatic events (extreme stressor).
- Odds for all mental disorders (except substance abuse) are substantially increased among those exposed to two or more war-related traumatic events.
- Rates of post-traumatic stress disorder (PTSD) in the 12 months (in 2004) were low (2%).
- Only one in four people with PTSD (0.5% of the population) had a level of disability severe enough to be considered as having a severe mental disorder.
- Substance abuse including alcohol abuse was not very common (1.3%) mostly among young, never married persons.

Conclusions are: (a) severe mental disorders are not uncommon in Lebanon, (b) war increased rates of disorders in Lebanon, (c) PTSD was a relative uncommon post-war concern in Lebanon.

### **Health sector resources for mental health**

According to the WHO Atlas, Lebanon has 7.5 psychiatry beds per 100 000 population (of which 99% are based in mental hospitals). The country has 2 psychiatrists (per 100 000 population), 5 psychiatric nurses (per 100 000 population), 1.5 social workers (per 100 000 population ) and 0.6 psychologists (per 100 000 population).

### **Recommendations for the health sector**

Consistent with draft Interagency standing committee (IASC) guidance and the relevant SPHERE standard, the following immediate actions are warranted:

1. Checking the status of persons in custodial institutions, who need ongoing protection and basic care, a concern that is quite different from other noncommunicable diseases (see draft IASC Action sheet 9.2).
2. Facilitating the ongoing care of people previously in psychiatric treatments, i.e. the same consideration for other noncommunicable diseases such as diabetes (see draft IASC Action sheet 9.1).
3. As soon as possible, start introducing basic psychological support in primary health care (see draft IASC Action sheet 9.0).

## 5. Immediate interventions for communicable disease control

### 5.1 Water and sanitation

- Ensuring uninterrupted provision of safe drinking-water is the most important preventive measure to reduce the risk of outbreaks of waterborne diseases.
- 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.
  - 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.
- UNHCR, WHO and SPHERE recommend that each person be supplied with **at least 20 litres** of clean water per day.
- 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.
- In addition, **adequate sanitation facilities** should be provided in the form of latrines or designated defecation areas.

### 5.2 Shelter and site planning

Wherever possible, shelters for the displaced or homeless must be placed with sufficient space between them and, in accordance with international guidelines, aimed at preventing diseases related to overcrowding, such as 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.

### 5.3 Safe food preparation

While the importance of safe water is well-recognized in all regions of the world, the significant risk related to food is often not understood. Therefore, one of the most important preventive measures in this area is to get the message of **importance of safe practices** as well as what these practices are to all people involved in the preparation of food.

- The importance of safe water for the preparation of food should be emphasized.
- Boiling will eliminate most microbiological but not all chemical risk.
- Guidance for crash courses on safe food preparation should be prepared for those involved in emergency food aid, such as displaced camp managers and NGO personnel.
- Health education targeting the general population should include simple measures related to food preparation (see health education section).

Human infection with avian influenza A(H5N1) virus can be contracted through handling of infected live or dead birds. Practices that increase risk of transmission include de-feathering and slaughtering of infected birds for consumption. In some instance, human consumption of dishes made of raw contaminated poultry blood was suspected as one of the possible source of infection of some human case of avian influenza A(H5N1) infection. However, no epidemiological data to date suggest that the disease can be transmitted to humans through properly cooked food (even if contaminated with the virus prior to cooking). Excluding birds

found sick/dead from the food chain (human and animal food chains), good hygiene while preparing food and respect of hand washing practices during and after preparing birds for consumption are some of the key measures of food safety against avian influenza A(H5N1) infection.

## 5.4 Essential trauma and medical care

Priority must be given to providing emergency medical and surgical care to people with injury-related conditions and to the provision of appropriate psychosocial support to communities.

Management of war related injuries are a crucial component of health care services in a conflict situation. Falling structures inflict 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:

- 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**. Antibiotic prophylaxis or treatment will likely be indicated.
- Health workers should **apply standard precautions** to avoid contact with blood, body fluids, secretions, excretions, mucous membranes, nonintact skin, and contaminated surfaces, including:
  - a) **Hand hygiene:**
    - Before and after any patient contact.
    - After removing gloves or any other PPE item.
    - Routine hand hygiene is performed either by using an alcohol-based hand rub (preferably) or by washing hands with soap and water and using a single-use towel for drying hands.
    - If hands are visibly dirty or soiled with blood or other body fluids or if broken skin might have been exposed to potentially infectious material, hands should be washed thoroughly with soap and water. Hands should also be washed after using the lavatory.
  - b) **Personal protective equipment** based on risk assessment and to avoid contact with blood, body fluids, excretions, and secretions:
    - clean non-sterile gloves.
    - clean, non-sterile fluid-resistant gown.
    - mask and eye protection or a face shield.
  - c) **Appropriate handling** of patient-care equipment and soiled linen .
  - d) Prevention of **needlestick/sharp injuries**.
  - e) Appropriate **environmental cleaning and spills-management**.
  - f) Appropriate **handling of waste**.
  - g) **rescue workers** should be provided with protective gear, wherever possible.
- For blood transfusion, screening of blood for HIV may not be possible by ELISA testing. Rapid testing should then be applied and test kits provided according to the regional and country protocols.

- **HIV PEP kits** should be available to health care workers, and rescue and safety workers in case of accidental exposure to contaminated blood and body fluids.

## 5.5 Case management

The use of standard **treatment protocols** in health facilities with agreed upon first-line drugs is also crucial to ensure effective diagnosis and treatment for acute respiratory infections, main epidemic-prone diseases (including dysentery, typhoid, hepatitis, measles, meningitis) and STIs. Infection control guidelines in accordance with national protocols should also be in place.

Health care for **chronic communicable diseases** (e.g. TB and HIV/AIDS) and **noncommunicable diseases** was being delivered mainly by the private sector health care providers in Lebanon. In the absence of these services, access to critical health care for patients will be particularly challenging, with very serious consequences on patient care. Appropriate provisions for the treatment and management of chronic diseases must be made to ensure that vital medications are made available and accessible by those requiring specialized health care. Simple field based laboratory diagnostics for response and patient monitoring must be made available.

## 5.6 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 communicable diseases most likely to occur in the conflict-affected population (see Table 1 above);
- be simple, used uniformly and include **standard case definitions** and reporting forms;
- 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 **laboratories** for prompt diagnosis and confirmation of the main communicable disease threats;
- data should be forwarded to the local ministry of health authorities and the WHO office.

## 5.7 Immunization

Immunization against vaccine-preventable diseases should be considered in the aftermath of a crisis situation to prevent epidemics and avoidable disease and death. The following recommendations were developed taking into consideration the current immunization schedule in Lebanon (two doses of MMR vaccine: dose 1 at 13 months and dose 2 at 4–5 years), relatively high immunization coverage officially reported in the past five years (85–90% for the first dose of MMR) – although actual coverage is probably closer to 60–70%, which has led to an ongoing outbreak of measles affecting predominantly two age groups (children aged 6–10 years and young adults aged 15–25 years).

- In crowded settings such as camps of displaced persons, vaccination using a **measles–rubella-containing vaccine**, together with **vitamin A supplementation**, is an immediate priority health intervention. In these settings, all children aged 6 months to 14 years should receive measles–rubella vaccine, regardless of previous vaccination or disease history<sup>1</sup>.
- Outside of camps, a single suspected measles case is sufficient to prompt the immediate implementation of measles control activities. Measles–rubella 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–rubella vaccine.

- In a camp where rubella transmission is detected and it is likely that some of the women are pregnant, consideration should be given to vaccinating women of childbearing age (aged 15–35 years). The vaccine of choice is **combined measles–rubella vaccine**.
- 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. Control of hepatitis A outbreaks has been most successful in small, self-contained communities, when vaccination is started early in the course of the outbreak, and when high coverage of multiple-age cohorts is achieved. Vaccination efforts should always be supplemented by health education and improved sanitation.
- Mass **tetanus vaccination** programmes to prevent disease are not indicated. However, tetanus boosters may be indicated for previously vaccinated people who sustain open wounds, for other injured people depending on their tetanus immunization history and for search and rescue workers involved in moving mass debris.
- Current **typhoid** vaccines are not recommended for mass campaigns to prevent typhoid disease. Typhoid vaccination in conjunction with other preventive measures may be useful to control typhoid outbreaks depending on local circumstances.
- To date, there is no specific indication for use of **oral cholera vaccines** in acute emergency situations. Intervention studies are still being performed to prove their effectiveness as a public health tool. The use of these vaccines is secondary to the effective implementation of existing strategies for cholera control.

## 5.8 Vector control

- Water storage containers should be covered to prevent them from becoming mosquito-breeding sites.
- Attempts should be made to eliminate pooled water that may be gathering among the debris.
- In areas with open fresh-water containers, larviciding is recommended to prevent mosquito breeding.
- Refuse must be collected and appropriately disposed of to discourage rodent vector breeding.
- Being a low malaria risk area, spraying of shelters with residual insecticide is not a priority.
- Distribution of long lasting insecticide-treated mosquito nets should be considered for areas where the vectors of anthroponotic cutaneous leishmaniasis are present.

## 5.9 Health education: basic messages

### 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.
- Minimum of 250 g of soap should be available per person per month.
- Use the latrine to defecate.
- Keep latrines clean.
- Promote recommended respiratory etiquette.

### Safe water

- Even if it looks clear, water can contain germs.
- Boil, or add drops of chlorine to the water before drinking.
- 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 cup or other utensil with a handle.

### Safe food

- Keep clean: wash hands and sanitize equipment used for food preparation, and keep people with symptoms of disease away from food preparation areas.
- Separate raw and cooked food and never use same equipment for raw foods and foods that are ready-to-eat, unless such equipment has been sanitized.
- Cook thoroughly until food is steaming hot, and eat cooked food immediately
- Keep food at safe temperatures, refrigerate or keep very hot – do not leave cooked food at room temperature for more than two hours.
- Use safe water and raw materials preferably cook vegetables and peel fruits that are eaten raw, discard damaged (flooded), spoiled or mouldy food.
- “COOK IT – PEEL IT – OR LEAVE IT”.
- Do not allow sick animals or animals found dead to enter the food chain.

### Water sources

- Do not defecate or urinate in or near a source of drinking-water.
- Do not wash yourself, your clothes, or your pots and utensils in the source of drinking-water (stream, river, or water hole).
- Open wells must be covered when not in use to avoid contamination.
- The buckets used to collect water should be hung up when not in use – they must not be left on a dirty surface.
- The area surrounding a well or a hand pump must be kept as clean as possible.
- Get rid of refuse and stagnant water around a water source.

### Seek treatment early

Early diagnosis and treatment for fever and diarrhoea is vital (within 24 hours of onset).

If diarrhoea, a solution of oral rehydration salts made with safe (boiled or chlorinated) water should be consumed and treatment sought at a health centre.

## **RELEVANT PUBLICATIONS**

### **WHO headquarters and Eastern Mediterranean Regional Office (EMRO) guidelines**

#### **Disease control in humanitarian emergencies**

[http://www.who.int/diseasecontrol\\_emergencies/en/](http://www.who.int/diseasecontrol_emergencies/en/)

#### **Emergency preparedness and disaster response, EMRO**

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

#### **Health Action in Crises department**

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

#### **Lebanon country office**

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

### **Avian influenza**

[http://www.who.int/csr/disease/avian\\_influenza/en/](http://www.who.int/csr/disease/avian_influenza/en/)

Avian influenza epidemiological surveillance programme in Lebanon

[http://www.oie.int/eng/info/hebdo/AIS\\_48.HTM#Sec14](http://www.oie.int/eng/info/hebdo/AIS_48.HTM#Sec14)

No bird flu risk for consumers from properly cooked poultry and eggs

<http://www.who.int/mediacentre/news/releases/2005/pr66/en/print.html>

### **Child health in emergencies**

<http://www.who.int/child-adolescent-health/publications/pubemergencies.htm>

### **Diarrhoeal diseases**

Acute diarrhoeal diseases in complex emergencies: critical steps:

[http://www.who.int/topics/cholera/publications/critical\\_steps/en/](http://www.who.int/topics/cholera/publications/critical_steps/en/)

Cholera outbreak: assessing the outbreak response and improving preparedness:

[http://www.who.int/topics/cholera/publications/cholera\\_outbreak/en/](http://www.who.int/topics/cholera/publications/cholera_outbreak/en/)

First steps for managing an outbreak of acute diarrhoea:

[http://www.who.int/topics/cholera/publications/first\\_steps/en/](http://www.who.int/topics/cholera/publications/first_steps/en/)

### **Environmental health in emergencies**

[http://www.who.int/water\\_sanitation\\_health/hygiene/emergencies/en/](http://www.who.int/water_sanitation_health/hygiene/emergencies/en/) ^

### **Food safety**

Ensuring foodsafety in the aftermath of natural disasters

[http://www.who.int/foodsafety/foodborne\\_disease/emergency/en/](http://www.who.int/foodsafety/foodborne_disease/emergency/en/)

### **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**

HIV/AIDS interventions in emergency settings: Interagency Standing Committee guidelines.

[www.who.int/3by5/publications/documents/iasc/en/](http://www.who.int/3by5/publications/documents/iasc/en/)

### **Leptospirosis**

[http://www.who.int/water\\_sanitation\\_health/diseases/leptospirosis/en/](http://www.who.int/water_sanitation_health/diseases/leptospirosis/en/)

### **Leishmaniasis**

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

### **Dengue**

Dengue haemorrhagic fever: diagnosis, treatment, prevention and control

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

Guidelines for treatment of Dengue fever and Dengue haemorrhagic fever in small hospitals

[http://w3.who.int/LinkFiles/Dengue\\_Guideline-dengue.pdf](http://w3.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. (WHO/CDS/EPR/2006.4).

### **Malaria**

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

### **Management of dead bodies**

Management of dead bodies after disaster situations: A field manual for first responders

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

Management of dead bodies in disaster situations

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

### **Measles**

WHO guidelines for epidemic preparedness and response to measles outbreaks:

[http://www.who.int/csr/resources/publications/measles/WHO\\_CDS\\_CSR\\_ISR\\_99\\_1/en/](http://www.who.int/csr/resources/publications/measles/WHO_CDS_CSR_ISR_99_1/en/)

### **Medical waste in emergencies**

[http://www.who.int/water\\_sanitation\\_health/medicalwaste/emergmedwaste/en/](http://www.who.int/water_sanitation_health/medicalwaste/emergmedwaste/en/)

### **Mental health in emergencies**

[http://www.who.int/mental\\_health/resources/emergencies/en/index.html](http://www.who.int/mental_health/resources/emergencies/en/index.html)

Inter Agency Standing Committee (IASC) guidance is on mental health in emergencies – English, draft of May 2006

[http://www.humanitarianinfo.org/iasc/content/documents/subsidi/tf\\_mhps/IASC%20guidance%20Peer%20review%20version.pdf](http://www.humanitarianinfo.org/iasc/content/documents/subsidi/tf_mhps/IASC%20guidance%20Peer%20review%20version.pdf)

Inter Agency Standing Committee (IASC) guidance is on mental health in emergencies – French draft version of May 2006

[http://www.humanitarianinfo.org/iasc/content/documents/subsidi/tf\\_mhps/La%20sant%20mentale%20et%20le%20soutien%20psychosocial%20%28%20IASC%20guidance%20Peer%20review%20version%29.pdf](http://www.humanitarianinfo.org/iasc/content/documents/subsidi/tf_mhps/La%20sant%20mentale%20et%20le%20soutien%20psychosocial%20%28%20IASC%20guidance%20Peer%20review%20version%29.pdf)

### **Noncommunicable diseases**

Cancer

<http://www.who.int/cancer/>

Cardiovascular Diseases

<http://www.who.int/cardiovascular-diseases/>

Diabetes

[http://www.who.int/ncd/dia/dia\\_relatedsites.htm](http://www.who.int/ncd/dia/dia_relatedsites.htm)

Human Genetics

<http://www.who.int/ncd/hgn/relatedsites.htm>

Tobacco

<http://www.who.int/tobacco/>

The Injury Chartbook

<http://www5.who.int/surveillance/mainp0000000390>

### **Meningitis**

Control of epidemic meningococcal disease. WHO practical guidelines:

[http://www.who.int/csr/resources/publications/meningitis/WHO\\_EM\\_C\\_BAC\\_98\\_3\\_EN/en/](http://www.who.int/csr/resources/publications/meningitis/WHO_EM_C_BAC_98_3_EN/en/)

### **Laboratory specimen collection**

[http://www.who.int/csr/resources/publications/surveillance/WHO\\_CDS\\_CSR\\_EDC\\_2000\\_4/en/](http://www.who.int/csr/resources/publications/surveillance/WHO_CDS_CSR_EDC_2000_4/en/)

**Pandemic influenza** preparedness and mitigation in refugee and displaced populations

[http://whqlibdoc.who.int/hq/2006/WHO\\_CDS\\_NTD\\_DCE\\_2006.2\\_eng.pdf](http://whqlibdoc.who.int/hq/2006/WHO_CDS_NTD_DCE_2006.2_eng.pdf)

### **Plague**

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

### **Travel advice**

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

### **Vaccines and biologicals for emergencies**

<http://www.who.int/vaccines/en/emergencies3.shtml>

### **Vector control**

[http://whqlibdoc.who.int/hq/2006/WHO\\_CDS\\_NTD\\_WHOPEP\\_GCDPP\\_2006.1\\_eng.pdf](http://whqlibdoc.who.int/hq/2006/WHO_CDS_NTD_WHOPEP_GCDPP_2006.1_eng.pdf)

### **Zoonotic diseases**

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

Brucellosis

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

Echinococcus

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

Rabies

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

### **Endnotes**

<sup>i</sup> These guidelines are for Lebanon only or for a country that has had a standing immunization policy for the control of rubella before the emergency.