

Public health risk assessment and interventions

Kyrgyzstan and Uzbekistan

June 2010

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Acknowledgements

This public health risk assessment was compiled by the unit on Disease Control in Humanitarian Emergencies (DCE), part of the Global Alert and Response Department (GAR) in the Health Security and Environment cluster (HSE), in collaboration with the Health Action in Crises (HAC) cluster at World Health Organization (WHO) Headquarters, and supported by the Department of Communicable Disease Surveillance and Response and the Emergency and Humanitarian Action units in the WHO Regional Office for Europe (EURO) and the WHO Country Offices of Kyrgyzstan and Uzbekistan.

The risk assessment was developed by the Communicable Diseases Working Group on Emergencies (CD-WGE) at WHO headquarters. The CD-WGE provides technical and operational support on communicable disease issues to WHO regional and country offices, ministries of health, other United Nations agencies, and nongovernmental and international organizations. The Working Group includes the departments of Global Alert and Response (GAR), Food Safety, Zoonoses and Foodborne Diseases (FOS), Public Health and Environment (PHE) in the Health Security and Environment (HSE) cluster; the Special Programme for Research and Training in Tropical Diseases (TDR); the Global Malaria Programme (GMP), Stop TB (STB), HIV/AIDS and Control of Neglected Tropical Diseases in the HTM cluster; the departments of Child and Adolescent Health and Development (CAH), Immunizations, Vaccines and Biologicals (IVB) in the Family and Community Health (FCH) cluster; Essential Health Technologies (EHT) in Health System and Services (HSS) cluster; Injuries and Violence Prevention (VIP) and Nutrition for Health and Development (NHD) in the Noncommunicable Diseases and Mental Health (NMH) cluster; Health and Medical Services (HMS) and Security Services (SEC) in the General Management (GMG) cluster, and the cluster of Health Action in Crises (HAC) and the Polio Eradication Initiative (POL) as a Special Programme in the Office of the Director General.

DCE gratefully acknowledges the current and previous collaboration and input of the disease-specific focal points of the CD-WGE, the WHO Regional Office for Europe and the WHO Country Offices of Kyrgyzstan and Uzbekistan, which have made the production of this profile possible.

DCE would also like to thank the Government of Ireland (Irish Aid) and the Office of Foreign Disaster Assistance (OFDA) of the United States Agency for International Development for their continued support in the development of these documents.

1. Context

In early June 2010, ethnic violence in southern Kyrgyzstan (Human Development Index ranking medium, 120/182) against the minority population of Uzbeks resulted in the displacement of more than 400 000 people. By late June 2010, the majority of the displaced was internally displaced in the Osh and Jalal-Abad areas of Kyrgyzstan but at least 100 000 were reported to have fled to the regions of Andijan, Ferghana and Namangan in neighbouring Uzbekistan.¹ Early reports indicated hundreds killed and possibly thousands injured. Large population movements are expected to continue as the displaced population returns to Kyrgyzstan.

The majority of the internally displaced population in Kyrgyzstan is currently reported as being sheltered by family and host communities but some tens of thousands may still be in need of shelter, including those refugees returning to Kyrgyzstan.

Although the population is generally in good health and well nourished,² many of the affected are vulnerable populations of the elderly and children under five years of age, 18% of whom suffer from moderate and severe stunting indicating chronic malnutrition.³

It is reported that infrastructure damage has largely been residential and that essential infrastructure (bridges, roads) and health-care facilities remain intact. Energy and power insecurity are of particular concern; absence of power may compromise the cold chain and peripheral health facilities, and have a secondary effect of adding pressure on urban health facilities.

The establishment of large camps may increase the risk of outbreaks, as both overcrowding and overall size of settlements are associated with an increased risk of communicable disease transmission. The State Department of Sanitary-Epidemiological Surveillance and the Health Information Centre, with support from the health sector/cluster, should reinforce systems of disease surveillance, control and prevention which may have been compromised by events.

The combination of lack of shelter and energy sources, sudden deterioration of water and sanitation services, food insecurity, malnutrition, overcrowding and severely curtailed access to health services present health risks to the displaced population. This public health risk assessment highlights the most immediate risks to the populations affected by this crisis, and outlines priority public health interventions.

Administrative divisions

Kyrgyzstan has 7 provinces (*oblasts*), plus Bishkek the capital. Each province is further subdivided into districts (*raions*). (Source: WHO-Kyrgyzstan).

¹ [http://www.reliefweb.int/rw/rwb.nsf/db900sid/CJUE-86NGPZ/\\$File/full_report.pdf](http://www.reliefweb.int/rw/rwb.nsf/db900sid/CJUE-86NGPZ/$File/full_report.pdf).

² http://apps.who.int/immunization_monitoring/en/globalsummary/countryprofileselect.cfm

³ http://www.unicef.org/infobycountry/kyrgyzstan_statistics.html#64

2. Priority health concerns

- **Treatment of traumatic injury and acute surgical conditions**

A current health concern is timely access to appropriate care for those who are injured. The nature of presenting injuries includes open wounds and blunt trauma. Delays in provision of trauma and emergency surgical care and rehabilitation for the injured can increase the likelihood of complications including disability, or of death.

An adequately functioning pre-hospital emergency medical service (EMS), such as an ambulance service, and emergency rooms that are adequately staffed and equipped can significantly improve survival rates among those with life-threatening injuries and surgical conditions. Given the context, particularly in Kyrgyzstan (reduced staffing, treatment delays, interruptions to electricity and limited water supplies), the risk of wound infection is high (see Section 7 for guidelines on *Surgical care*, *Tetanus* and *Wounds and injuries*). Although routine tetanus vaccination coverage is reported as being high (see Table 1 below) health-care workers should remain aware of the potential of contracting tetanus from dirty wounds.

- **Communicable diseases**

Risk is high for diarrhoeal disease outbreaks due to insufficient safe water, compromised sanitation/hygiene facilities and food safety, and overcrowding. Risk of polio virus importation or exportation due to population movement is also high during or after this emergency if populations are repatriated. Although routine national vaccination coverage is reported as high (>95%) massive population displacement with overcrowding increases the risk of transmission of vaccine-preventable diseases such as measles.

- **Mental disorders and psychosocial problems**

The stress and losses that occur during emergencies are a risk factor for a wide range of mental disorders, including mood and anxiety disorders (such as post-traumatic stress disorder). WHO projects that the long-term effects of emergencies can increase the number of people with severe mental disorders by an average of 1% above baseline and those with mild and moderate mental disorders by an estimated 5–10% above baseline. Much of the affected population is also likely to be burdened by a wide range of symptoms of distress and other psychosocial problems caused by severe trauma, loss and adverse social and living conditions.

- **Reproductive health (including sexual violence)**

Neglecting reproductive health in humanitarian settings has serious consequences including maternal and newborn deaths, sexual violence and subsequent physical, psychological and social consequences, and the possible spread of HIV. The MISP (Minimum Initial Services Package for reproductive health in emergencies) is a set of priority minimum reproductive health (RH) interventions which must be in place in all humanitarian settings and a SPHERE⁴ standard. The MISP includes the prevention and management of the consequences of sexual violence, the reduction of HIV transmission and the prevention of maternal and newborn morbidity and mortality.

- **Continued treatment and care for chronic conditions**

WHO/Europe's "Highlights on Health" for Kyrgyzstan and Uzbekistan⁵ list 10 conditions which account for 90% of the disease burden. Both countries report the same top three conditions, with country and gender ranking differences (cardiovascular disease, neuropsychiatric disorders and unintentional injuries). A continued availability of essential medicines and supplies for treatment of patients with chronic conditions is critical.

National treatment guidelines and policies must be considered for all the above to ensure compliance with national pharmacological practice and avoid the purchase and supply of inappropriate medicines and facilitate customs clearance.

⁴ SPHERE comprises a Humanitarian Charter and Minimum Standards to be attained in disaster assistance, contributing to an operational framework for accountability in disaster assistance efforts: <http://www.sphereproject.org/>.

⁵ Kyrgyzstan: http://www.euro.who.int/_data/assets/pdf_file/0008/103211/e88739.pdf
Uzbekistan: www.euro.who.int/_data/assets/pdf_file/0019/103618/E88286.pdf

3. Priority communicable diseases

- **Waterborne and foodborne diseases**

The risk of outbreaks of waterborne and foodborne diseases is currently high and will increase if safe water, sanitation services and hygiene facilities (hand washing and soap) are not accessible, or are allowed to deteriorate further. The main pathogens of concern are *Campylobacter*, *Salmonella*, *Shigella*, *Leptospira*, rotavirus, as well as other enteropathogens such as *Entamoeba histolytica* and hepatitis A and E. Typhoid (and paratyphoid) should be considered as cases have been reported in Kyrgyzstan in 2008 and 2009, the majority in Jalal-Abad province or *oblast*.

Diarrhoeal illness exacerbates malnutrition and malnutrition increases the risk and severity of diarrhoeal illness; in children, malnutrition is associated with the majority of diarrhoeal deaths. In addition to cautiously monitored rehydration, the treatment of diarrhoeal diseases in children under five should also ensure continued feeding, including breastfeeding, during and after the diarrhoeal episode⁶.

- **Vaccine-preventable diseases**

Vaccine-preventable diseases have had low incidence in recent years in Kyrgyzstan. See the nationally reported routine vaccination coverage in Table 1. The risk of measles, diphtheria, pertussis and meningitis outbreaks is increased in displaced and crowded populations. Overcrowding increases the risk of measles transmission even among populations with high vaccine coverage.

Table 1. Routine vaccination coverage at one year of age, 2009, Kyrgyzstan and Uzbekistan⁷

Antigen	% coverage*	
	Kyrgyzstan	Uzbekistan
(BCG) bacille Calmette–Guérin	98	99
Diphtheria–pertussis–tetanus, 3rd dose	95	98
Hepatitis B, 3rd dose	96	98
MCV (measles-containing vaccine)	99	95
Polio, 3rd dose	96	99

*Official estimates reported to WHO/UNICEF, last update 1st June 2010.

Measles, mumps, and rubella

Kyrgyzstan has reported only one measles case in 2009–2010 following a small outbreak of 16 cases in 2008. Recent mumps outbreaks have been reported: 160 cases of mumps were reported in 2009 and 436 cases in 2008. 14 cases of rubella were reported in 2009 and 4 cases in 2008. Reported routine immunization coverage with measles-containing vaccine (MMR at 12 months of age and MR at 6 years of age) is persistently high; however, coverage surveys conducted in the recent years have found low coverage (<80%) in selected territories. The Kyrgyz Ministry of Health plans to conduct supplementary immunization activities using MMR vaccine in camps for the internally displaced population and other places of mass population gatherings for an estimated target population of 50 000 persons aged 1–40 years.

Uzbekistan implemented nationwide measles-rubella supplementary immunization activities with very high (>95%) coverage in 2007 and reported no measles cases in 2009–2010. Major mumps outbreaks have occurred in recent years, see Table 2. The Uzbek Ministry of Health is planning to vaccinate all refugees from Kyrgyzstan younger than 15 years of age with MR.

⁶ Exclusive breastfeeding should be encouraged for infants < 6 months. The most appropriate alternative for infants dependent on a breast milk substitute (BMS) is ready-to-use infant formula is most appropriate as it does not require mixing with water.

⁷ http://whqlibdoc.who.int/hq/2009/WHO_IVB_2009_eng.pdf
http://apps.who.int/immunization_monitoring/en/globalsummary/timeseries/tscoveragebycountry.cfm?C=KGZ
http://apps.who.int/immunization_monitoring/en/globalsummary/timeseries/tscoveragebycountry.cfm?C=UZB

Communicable Disease Working Group on Emergencies (CDWGE-WHO/HQ);
WHO Regional Office for the Europe (EURO), WHO Offices for Kyrgyzstan and Uzbekistan
Public health risk assessment and interventions: Kyrgyzstan and Uzbekistan. June 2010.

Table 2. Major mumps outbreaks reported in Uzbekistan⁸

Year	Figures	Location (s)
1997	11 587 cases	Tashkent, Bukhara, Navoi
2002	9 677 cases	Tashkent, Bukhara
2007*	4 151 cases	Fergana, Tashkent, Navoi
2008	1862 cases or 6.9 per 100 000	NA
2009	1454 cases or 5.1 per 100 000	NA
2010**	682 cases	NA

*Although Ferghana valley was epicentre of 2007 outbreak, very few cases are reported from Andijan province where most refugee camps are located: 2010 – no cases; 2009 – 21 cases; and 2008 – 20 cases

** as of 1 June 2010.

NA-not available

Polio; given the recent outbreak in Tajikistan⁹, the possibility of importation or exportation of the virus exists. WHO has been working closely with Tajikistan's neighbours in the WHO European Region (Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan) on surveillance strengthening, prevention and response measures.

Kyrgyzstan had planned 2 nationwide rounds using mOPV1, on 5–9 July and 9–13 August, but these will probably be delayed. All refugees aged <15 years are being systematically immunized with mOPV1 upon arrival in Uzbekistan.

Uzbekistan has reported 41 acute flaccid paralysis cases since January 2010; 26 are negative for poliovirus while 15 are still pending laboratory results. The third round of nationwide polio vaccination is tentatively planned for 5–9 July.

Pertussis, diphtheria; cases of pertussis have been reported in both countries in recent years (224 cases in 2009 and 45 in 2008 in Kyrgyzstan and 35 in 2009 and 35 in 2008 in Uzbekistan), although diphtheria has not been reported in Kyrgyzstan since 2008 nor in Uzbekistan since 2000.

Tetanus; the main risk for tetanus results from anaerobic wounds (puncture wounds, wounds with necrotic tissue) sustained by individuals whose immunity has waned (last dose of TT-containing vaccine received more than 10–20 years previously, depending on total doses received). The incubation period is usually 3–21 days, and the case-fatality ratio (CFR) is 2–50%. (For guidelines on prevention and management of tetanus, see Section 7).

Meningitis; Kyrgyzstan and Uzbekistan are not known to be hyperendemic; the disease is endemic with occasional clusters or small epidemics. The 3 most frequent bacteria causing meningitis are *S. pneumoniae*, *H. influenzae type b* and *N. meningitidis*, the latter having the largest epidemic potential. Meningitis due to *N. meningitidis* is an ubiquitous disease, with yearly cumulative incidence rate ranging from <1/100 000 in endemic areas to 1000/100 000 in the African meningitis belt. Risk factors for meningitis outbreaks due to *N. meningitidis* include population movement, overcrowding, closed settings, IDP and refugee camps. Microbiological investigation of suspected meningitis cases should identify the causative microorganism, and in case of *N. meningitidis* epidemics, the serogroup, in order to select the appropriate vaccine.

- **Acute respiratory infections (ARI) including pneumonia**

Children and newborns are particularly at risk from ARI and have an increased risk of death from pneumonia. The main risk factors include crowding, poor ventilation, indoor smoke, malnutrition and lack of breast-feeding. The disruption of EPI services also means fewer children receive vaccination against measles, pertussis, diphtheria and supplements of vitamin A, all highly effective preventive interventions against pneumonia. Acute malnutrition is a major contributing factor to morbidity and

⁸ http://apps.who.int/immunization_monitoring/en/globalsummary/countryprofileselect.cfm

⁹ <http://www.euro.who.int/en/what-we-do/health-topics/diseases-and-conditions/poliomyelitis/sections/news/2010/7/latest-epidemiological-update-on-polio-outbreak-in-central-asia>

mortality from communicable diseases such as pneumonia, particularly in children. Micronutrient deficiencies, especially iron deficiency anaemia and vitamin-A deficiency also contribute to ARI morbidity and mortality. WHO/Europe conducts surveillance of seasonal influenza in the Region and publishes a weekly regional bulletin on seasonal influenza in English and Russian.¹⁰

- **Tuberculosis (TB)**

Untreated active pulmonary TB carries a case-fatality ratio (CFR) of 65% within 5 years. In the acute phase of this emergency, the main concern for TB programmes is the continuation of treatment which is likely to be hampered by drug supply problems and loss of contact with patients (see Section 7, Tuberculosis). Since TB is a problem in both Kyrgyzstan and Uzbekistan, it is essential that the treatment of Kyrgyz refugees with TB who arrive in Uzbekistan be continued in collaboration with the services of the National TB Programme of Uzbekistan.

Approximately 6500 new cases of active TB occur in **Kyrgyzstan** every year (121/100 000 pop./year); among them 2900 are smear-positive pulmonary TB cases (54/100 000 pop./year). TB burden has increased since early 1990s; the TB incidence (all forms) was 55/100 000 population in 1990. DOTS (directly observed treatment, short-course) was introduced 10 years ago. The case detection rate is 88% for all forms of TB and 60% for smear-positive TB cases. The treatment success rate is 82%. Multidrug resistant (MDR) TB is also a problem; the prevalence of MDR-TB is 13% among new TB cases and 41% among previously treated cases. The strategic plan on TB control 2009–2014 has been drafted but not yet approved.

Uzbekistan belongs to the 18 priority TB countries of the 53 Member States of the WHO European Region. The estimated number of new TB cases, all forms, was 30 800 in 2008 (113/100 000 pop.); among these, 13 800 were smear-positive pulmonary TB patients (50/100 000 pop.). TB burden (all forms) increased from 68 new TB cases per 100 000 population in 1990 to 113 per 100 000 population in 2007. DOTS was introduced 10 years ago. Only 48% of pulmonary TB cases are bacteriologically confirmed. The case detection rate is 61% for all forms of TB and 46% for smear-positive TB cases. The treatment success rate was 81% 2006. Similarly to Kyrgyzstan, MDR-TB is an important problem in Uzbekistan; the prevalence of MDR-TB cases is 15% among new TB cases and 60% among previously treated cases.

- **HIV**

The national HIV prevalence estimate for Kyrgyzstan and Uzbekistan was 0.1% in adults 15–49 years in 2007. In specific groups and areas, the prevalence is much higher.

In **Kyrgyzstan**, the prevalence of HIV infection, based on recorded cases in 2009, was 12.8 per 100 000 population, up from 10.2 in 2008. The prevalence of HIV infection among intravenous drug users (IDUs) in 2009 was 14.3%, double that of 2007. In Osh city, the HIV prevalence was 1.3% in sex workers and 11.6% in IDUs in 2004. In the Osh region, HIV prevalence in IDUs was 10.0%. By contrast, in Bishkek, HIV prevalence was 1.1% among IDUs¹¹.

In **Uzbekistan**, the HIV prevalence is also highest in IDUs but is increasingly occurring in the general population, including women and children. In 2009, there were 15 892 people living with HIV/AIDS registered, and 2653 are under antiretroviral therapy (ART). There were 283 pregnant women enrolled in PMTCT (Preventing mother-to-child transmission of HIV)

There have been no reports to date of shortages of supplies in either country for continuing treatment of those on ART; the main issue will be the loss of contact with patients. The specific minimum responsibilities of the health sector/cluster for HIV in humanitarian settings regardless of the prevalence of HIV or the nature of the epidemic in the setting/population should be adhered to as per the revised 2009 Inter Agency Standing Committee (IASC) guidelines on addressing HIV in humanitarian settings (see Section 7, HIV).

¹⁰ <http://www.euroflu.org/index.php>

¹¹ http://apps.who.int/globalatlas/predefinedReports/EFS2008/full/EFS2008_KG.pdf

- **Malaria**

Both countries are in the malaria elimination phase. All reported malaria cases in both countries are due to *Plasmodium vivax* and the overall risk is low.^{12,13}

Kyrgyzstan reported only 18 malaria cases in 2008, falling steadily from a high of over 2000 cases in 2002. There were no reported deaths. The highest malariogenic potential is found in the southern regions of the country, including the Osh, Batken and Jalal-Abad areas, primarily due to the many rice plantations in the region. Malaria vectors in these areas include *An. pulcherimus*, *An. superpictus*, *An. hyrcanus*, *An. martinius*, *An. claviger* and *An. Messeae*, and all have been shown to be susceptible to DDT, fenitrothion, cyfluthrin, deltamethrin, malathion, lambda-cyhalothrine and propoxur.

Uzbekistan reported only seven autochthonous malaria cases in 2008. One malaria-related death was reported in 2007. Transmission is focal and localized to small areas, but there is some concern that the problem may be larger than officially reported. The risk of malaria transmission is highest in the southern and eastern parts of the country, particularly in areas bordering Afghanistan and Tajikistan. The transmission season is from May to October, but can take place from April to November under favourable conditions in southern Uzbekistan.

- **Zoonoses**

Anthrax (human); Kyrgyzstan reported 47 cases in 2008 and 11 cases in 2009, 10 of which were registered in Jalal-Abad oblast and 1 in Osh. Humans generally acquire the disease directly or indirectly from infected animals, or occupational exposure to infected or contaminated animal products. The cutaneous form accounts for 95% or more of human cases globally. Anthrax is potentially fatal if not treated promptly with antibiotics. Uzbekistan reported only 2 cases of cutaneous form of anthrax in 2008 and 1 case in 2009.

Brucellosis; Kyrgyzstan reported 3815 cases in 2008, and 3630 in 2009, many of them in the affected area. Uzbekistan reported 410 cases of brucellosis in 2008 and 332 cases in 2009. Brucellosis can cause major loss of livestock, reducing availability of food and further impacting on population health. Humans become infected by contact with animals or animal products that are contaminated with these bacteria.

Crimean Congo haemorrhagic fever (CCHF); Kyrgyzstan has been reporting limited outbreaks of CCHF the last several years (approximately 5 to 10 CCHF laboratory confirmed cases per year). Despite outbreaks in Tajikistan and Kazakhstan in 2009, near the Uzbek border, there were no cases of CCHF reported in Uzbekistan. CCHF spreads to humans either by tick-bites, or through contact with viraemic animal tissues during and immediately post-slaughter. Persons living in endemic areas should use personal protective measures that include avoidance of areas where tick vectors are abundant and when they are active (Spring to Autumn), regular examination of clothing and skin for ticks and their removal, and use of repellents. When patients with CCHF are admitted to hospital, there is a risk of nosocomial spread of infection. In the past, serious outbreaks have occurred in this way and it is imperative that adequate infection control measures be observed to prevent these.

Leishmaniasis is caused by parasitic protozoa of the genus *Leishmania*. Humans are infected via the bite of *phlebotomine* sandflies. Most forms of the disease are transmissible only from animals (zoonosis), but some can be spread between humans. While no longer a problem in Kyrgyzstan (no reporting after 1982), both cutaneous leishmaniasis (CL) and visceral leishmaniasis (VL) are reported to be spreading in Uzbekistan. VL was virtually eliminated in Uzbekistan, however the number of VL cases is now increasing. Before 2004, less than 5 cases were reported per year, but 25 cases were registered before 2009 was finished, all in one district (Namangan), and most likely due to increased awareness. CL is prevalent in 5 districts (Bukhara, R. Karalpakstan, Navoi, Kaskadaya, Sukhandaiya) with a usual aggregated case load of over 100 cases per year. The incidence of zoonotic CL varies between 100 and 300 cases per year (peak in 2003) – in 2004 there was a local outbreak of zoonotic CL with 210 cases.

¹² <http://www.euro.who.int/en/what-we-do/health-topics/diseases-and-conditions/malaria/country-work>

¹³ http://whqlibdoc.who.int/publications/2008/9789241563697_eng.pdf

Plague; plague is endemic in both Kyrgyzstan and Uzbekistan but the risk is limited to rural populations, hunters and is unlikely to increase in the current situation. No human cases have been reported for almost a decade in either country.

Rabies; 3 human cases occurred in the south of Kyrgyzstan in 2009. 3 human cases reported in Uzbekistan in 2008 and 4 cases in 2009.

Dangerous pathogens; Uzbekistan is still using the Epidemic Control Procedures (for extremely dangerous pathogens) adopted in 1992. A working group was established at MOH and work is ongoing to review these procedures and adapt them based on relevant WHO guidelines.

4. Priority interventions

- **Provide emergency medical and surgical care** for traumatic injury, burns and life threatening surgical conditions. Ensure appropriate wound management including tetanus prophylaxis and vaccination.
- **Provide sufficient safe water**, sanitation services and reinforced hygiene services in health-care facilities and community settings.
- **Reproductive health**; ensure victims of sexual violence have access to appropriate medical and psychosocial care, ensure safe delivery and prevent HIV.
- **Vaccination**; the respective Ministries of Health recommend supplementary vaccination activities with MMR (measles, mumps, rubella) among IDPs aged <15 years in Kyrgyzstan; and vaccination for all refugees aged <15 years in Uzbekistan with mOPV1 (polio) and MR (measles, rubella).
- Establish and maintain an effective mechanism for **communicable disease surveillance and response** to detect and respond to outbreaks, with particular focus on diarrhoeal and vaccine-preventable diseases such as polio, measles and mumps.
- **Provide support for mental health and psychosocial disorders.**
 - Include specific psychological and social considerations in provision of general health care;
 - provide psychological first aid to people with severe, acute anxiety;
 - ensure continued access to care for people with severe mental disorders.
- **Ensure the continuation of treatment of chronic conditions** for those on medications including TB, cardiovascular, diabetes and kidney disease.
- **HIV**; ensure delivery of a minimum set of HIV prevention, treatment, care and support services to people affected by humanitarian crises as per IASC HIV guidance 2009.
- **Infection prevention and control**; Kyrgyzstan has a national infection control programme with national guidelines, however nosocomial outbreaks (CCHF and HIV) have been reported in Kyrgyzstan. It is important to ensure Standard Precautions are implemented.
- **Nutritional services**; ensure the capacity of health workers in the regions of Isyk-Kul, Jalal-Abad and Talas to manage children with moderate or severe acute malnutrition, provide nutrition counselling to families with children who are moderately malnourished and assess the need for supplementary feeding.
- **Humanitarian staff** arriving at the area should ensure proper health preparation (see Section 6, *Staff health*)

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).

MALNUTRITION:

Definition of acute malnutrition in children less than 5 years:

Moderate acute malnutrition:

Weight for Height ≥ -3 SD and < -2 SD (WHO standards)

Or

Mid Upper Arm circumference (MUAC) ≥ 11.5 cm and < 12.5 cm

Severe acute malnutrition:

Weight for Height < -3 SD (WHO standards)

Or

Mid Upper Arm circumference < 11.5 cm

And/or

Pitting oedema on both feet.

Definition of overweight in children less than 5 years:

Weight for Length/Height $> +2$ SD

Or

BMI for age $> +2$ SD.

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

Recommended for staff deployed to Kyrgyzstan/Uzbekistan

Emergency settings differ vastly in their nature but also by epidemiological context. It is thus essential that medical preparation is as comprehensive as possible (with the limitations imposed by departure at short notice) and tailored specifically for the region.

A minimum period of time is needed to build up protective levels of antibodies after immunization, which additionally may require several injections. It is advised that vaccinations are received 2 weeks in advance of departure if possible (see table below). The duration of the mission may influence choice of vaccines in case of immediate departure.

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

Basic knowledge on First Aid and stress 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, or a rapid onset of burn-out. Even if this is not always avoidable, good preparation can be useful for preventing and limiting stress. (For additional information, see Section 7, *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	Booster dose is recommended if not taken in the last 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	
Optional			
	Measles		Potential risk in emergency situation. If not fully immunized in childhood, obtain vaccination.

B - Malaria prophylaxis and treatment

Malaria risk- due exclusively to *P.vivax* exists from June through October in some southern and western parts of the country, mainly in areas bordering Tajikistan and Uzbekistan-Batken, Jalad-Abad and Osh regions, and in the outskirts of Bishkek.

Recommended *prevention* in risk areas: Mosquito bite prevention only, no prophylaxis recommended.

Recommended *treatment* for staff if they contract malaria: Primaquine plus chloroquine.

C - Other precautions

To consider for teams

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

7. Information sources

Ministries of Health

Kyrgyzstan <http://www.med.kg/> (Russian)

Uzbekistan <http://www.gov.uz/en/authorities/ministries/1303>

WHO headquarters and WHO Regional Office for Europe

WHO/EURO

<http://www.euro.who.int/en/home>

Kyrgyzstan: <http://www.euro.who.int/en/where-we-work/member-states/kyrgyzstan>

Uzbekistan: <http://www.euro.who.int/en/where-we-work/member-states/uzbekistan>

European health for all database (HFA-DB): <http://data.euro.who.int/hfad/>

Centralized information system for infectious diseases (CISID): <http://data.euro.who.int/cisid/>

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

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

Health Action in Crises (HAC), WHO/HQ

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

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

Manual for the health care of children in humanitarian emergencies

http://www.who.int/child_adolescent_health/documents/9789241596879/en/index.html

Dengue

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

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

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

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

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

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

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

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

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

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

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

Diarrhoeal diseases

Acute diarrhoeal diseases in complex emergencies: critical steps.

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

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

Cholera outbreak: assessing the outbreak response and improving preparedness

http://www.who.int/cholera/publications/cholera_outbreak/
http://whqlibdoc.who.int/hq/2004/WHO_CDS_CPE_ZFK_2004.4_fre.pdf

First steps for managing an outbreak of acute diarrhoea.

http://www.who.int/cholera/publications/first_steps/
http://whqlibdoc.who.int/hq/2004/WHO_CDS_CSR_NCS_2003.7_Rev.1_fre.pdf

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

<http://www.who.int/topics/cholera/publications/shigellosis/>
<http://www.paho.org/english/hcp/hct/eer/Shigella.htm>

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://www.who.int/selection_medicines/emergencies/guidelines_medicine_donations/en/
http://whqlibdoc.who.int/hq/1999/WHO_EDM_PAR_99.4.pdf
<http://apps.who.int/medicinedocs/pdf/whozip53f/whozip53f.pdf>

Environmental health in emergencies

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

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

Gender

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

Available in [Arabic](#) | [English](#) | [French](#) | [Mandarin](#) | [Russian](#) | [Spanish](#) (see links at <http://www.who.int/hac/techguidance/pht/womenshealth/en/index.html>)

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/>

Hepatitis B

Management of Hepatitis B and HIV Coinfection. WHO 2009.

<http://www.euro.who.int/en/what-we-do/health-topics/diseases-and-conditions/hiv/aids/publications/pre-2009/hiv-aids-treatment-and-care2.-clinical-protocols-for-the-european-region/protocol-07.-management-of-hepatitis-b-and-hiv-coinfection>

HIV/AIDS

Guidelines for HIV/AIDS interventions in emergency settings: Inter-Agency Standing Committee (IASC) guidelines. Revised 2009.

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

ART failure and strategies for switching ART regimens in the WHO European Region. WHO 2007.

<http://www.euro.who.int/en/what-we-do/health-topics/diseases-and-conditions/hiv/aids/publications/pre-2009/art-failure-and-strategies-for-switching-art-regimens>

Immunization, vaccines and biologicals

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

Infection prevention and control in health care

Infection prevention and control in health care for preparedness and response to outbreaks:

http://www.who.int/csr/bioriskreduction/infection_control/publications/en/index.html

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

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

Influenza; Seasonal and Pandemic

Influenza

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

WHO/Europe influenza surveillance: <http://www.euroflu.org/index.php>

Hospital preparedness checklist for pandemic influenza: focus on pandemic (H1N1) 2009:(WHO 2009).

English: http://www.euro.who.int/_data/assets/pdf_file/0004/78988/E93006.pdf

Russian: http://www.euro.who.int/_data/assets/pdf_file/0005/78989/E93006R.pdf

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

http://www.who.int/diseasecontrol_emergencies/WHO_HSE_EPR_DCE_2008_3web.pdf

Emergency guidelines for the management of patients with severe respiratory distress and shock in district hospitals in limited-resource settings. WHO

http://www.who.int/entity/csr/resources/publications/swineflu/imai_h1n1.pdf

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

WHO Global Malaria Programme: Epidemics and emergencies

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

Guidelines for the treatment of malaria (WHO, 2009, 2nd addition)

<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/publications/atoz/924159389X/en/index.html>

National malaria control guidelines, Kyrgyzstan: Russian language version

<http://www.malaria.kg/>

Malaria transmission in Uzbekistan. WHO Europe website

<http://www.euro.who.int/en/what-we-do/health-topics/diseases-and-conditions/malaria/country-work/uzbekistan>

Regional Strategy: the Move from Malaria Control to Elimination in the WHO European Region 2006–2015

English: http://www.euro.who.int/_data/assets/pdf_file/0011/98750/E88840.pdf

Russian: http://www.euro.who.int/_data/assets/pdf_file/0007/98809/E88840R.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://www.who.int/nutrition/publications/emergencies/en/index.html>
<http://whqlibdoc.who.int/publications/2000/9241545208.pdf>

Infant and Young Child Feeding in Emergencies. Operational guidance for emergency relief staff and programme managers (IFE, 2007) [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
http://whqlibdoc.who.int/hq/2002/WHO_FCH_CAH_00.1_fre.pdf

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

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>

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

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&suiwant=16>

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

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

Meningitis

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

http://www.who.int/csr/resources/publications/meningitis/WHO EMC_BAC_98_3_EN/en/

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

Mental health in emergencies

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

Communicable Disease Working Group on Emergencies (CDWGE-WHO/HQ);
WHO Regional Office for the Europe (EURO), WHO Offices for Kyrgyzstan and Uzbekistan
Public health risk assessment and interventions: Kyrgyzstan and Uzbekistan. June 2010.

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>
<http://www.humanitarianinfo.org/iascweb2/downloaddoc.aspx?docID=4453&type=pdf>

Nutrition

The management of Nutrition in major emergencies, (WHO, UNHCR, IFRC, WFP, 2000)
<http://www.who.int/nutrition/publications/emergencies/9241545208/en/index.html>
WHO child growth standards and the identification of severe acute malnutrition in infants and children (WHO/UNICEF Joint Statement, 2009)
http://www.who.int/nutrition/publications/severemalnutrition/9789241598163_eng.pdf

Polio

WHO-recommended surveillance standard of poliomyelitis
http://www.who.int/immunization_monitoring/diseases/poliomyelitis_surveillance/en/index.html

Reproductive Health in Emergencies (including sexual violence)

<http://www.who.int/hac/techguidance/pht/womenshealth/en/index.html>
IAWG Reproductive health in humanitarian settings: an inter-agency field manual 2010
<http://www.iawg.net/IAFM%202010.pdf> (includes details on MISP -Minimum Initial Services Package)
MISP summary
<http://misp.rhrc.org/pdf/cheat%20sheet/MISP%20cheat%20sheet%20rev.04%202010.pdf>

Sexual and other forms of gender-based violence

WHO/UNHCR Clinical management of rape survivors: Developing protocols for use with refugees and internally displaced persons. 2004 - Revised edition
<http://whqlibdoc.who.int/publications/2004/924159263X.pdf> (also available in French and Arabic)
IASC Guidelines for Gender-based Violence Interventions in Humanitarian Settings (2005)
http://www.humanitarianreform.org/humanitarianreform/Portals/1/cluster%20approach%20page/clusters%20pages/Gender/tfgender_GBVGuidelines2005.pdf (also available in French and Spanish)

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>
http://www.who.int/foodsafety/publications/consumer/en/5keys_fr.pdf
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 for Emergency and Essential Surgical Care (IMEESC) tool kit
<http://www.who.int/surgery/publications/imeesc/en/index.html>

Communicable Disease Working Group on Emergencies (CDWGE-WHO/HQ);
WHO Regional Office for the Europe (EURO), WHO Offices for Kyrgyzstan and Uzbekistan
Public health risk assessment and interventions: Kyrgyzstan and Uzbekistan. June 2010.

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

Current recommendations for treatment of tetanus during humanitarian emergencies

http://www.who.int/diseasecontrol_emergencies/publications/who_hse_gar_dce_2010.2/en/index.html

Travel advice

Guide on Safe Food for Travellers

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

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

International Travel and Health (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

Tuberculosis surveillance in Europe 2008

<http://www.euro.who.int/en/what-we-do/health-topics/diseases-and-conditions/tuberculosis/publications/2009/tuberculosis-surveillance-in-europe-2008>

Vector control

Integrated vector management

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

<http://www.who.int/malaria/integratedvectormanagement.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_WHOPES_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/envsan/technotes/en/index.html

Frequently asked questions in case of emergencies

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

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

<http://www.healthcarewaste.org/en/documents.html?id=184&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 for Emergency and Essential Surgical Care (IMEESC) tool kit

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

Best Practice Guidelines on Emergency Surgical Care in Disaster Situations [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/>