

# COMMUNICABLE DISEASE PROFILE

## IRAQ

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**World Health Organization**

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## **Preface**

The purpose of this document is to provide public health professionals working in Iraq and neighbouring countries with up to date information on the major communicable disease threats faced by the population. The list of endemic and epidemic diseases has been selected on the basis of the burden of morbidity and mortality. Diseases that have global eradication or elimination goals are also included. The document outlines the burden of communicable diseases in Iraq for which data are available, provides data on recent outbreaks in the country, and presents disease-specific guidelines on the prevention and control of these diseases.

The WHO offices at country, regional and headquarters level have compiled the data provided by the Iraqi Ministry of Health.

The control of communicable diseases represents a major challenge to those providing health care services in Iraq and neighbouring countries. It is hoped that this document will facilitate the co-ordination of communicable disease control activities between all agencies working in the region.

## Executive Summary

Communicable diseases are a major cause of mortality and morbidity in Iraq. Three of the major killers are acute lower respiratory infections (ALRI), diarrhoeal diseases and measles. ALRI and diarrhoea alone account for 70% of deaths in children under 5 years of age.

The incidence of ALRI increased in the early nineties, and has remained high over the last decade. This has been primarily due to sanctions, food insecurity, inadequate feeding practices, malnutrition, and lack of access to quality health services combined with population displacement and overcrowding.

Outbreaks of diarrhoeal diseases are common in Iraq, with high incidence especially in the summer months. Many electricity-generating plants and water purification and sewage treatment plants were destroyed during the 1991 Gulf War, with a delay in or incomplete repair of these facilities. These, coupled with overcrowded conditions and lack of sanitation facilities, have been responsible for cholera outbreaks (most recently in 1998 and June-August 2002) and a rise in incidence of other diarrhoeal diseases over the last decade. Cholera became endemic in all governorates of Iraq following the 1991 crisis. Rural areas are particularly affected with the high-risk period occurring from April to November. It is important to note that in 2000, only 50% of the urban population and 33% of the rural population in Central/Southern Iraq had access to safe drinking water.

Measles is the third most common cause of death in children under 5 years of age in Northern Iraq as mortality due to measles is higher among populations where malnutrition is a problem. In Southern Iraq, more than two-thirds of measles cases are now occurring in older children due to continuing low rates of routine immunization coverage.

Other vaccine-preventable diseases such as pertussis (whooping cough) and diphtheria, rarely seen in middle-income countries, also continue to occur throughout the country. Pertussis incidence remains high and appears to be increasing. The last pertussis epidemic occurred from June-December 1996 with 40% of those affected under 5 years of age. Almost 20% of children 1-4 years were not immunized. Pertussis has no seasonal pattern but tends to favour the summer/autumn months (June-Oct), while diphtheria tends to occur more in colder months. However, both diphtheria and pertussis pose a potential problem if introduced into crowded refugee settings with many non-immunized children.

Tuberculosis (TB) has also been on the rise in the last decade, as a result of the deteriorating socioeconomic status of the population, overcrowded conditions and disruption in health care services such as delays in supplying anti-TB drugs. The estimated incidence of TB nearly tripled from 46.1 per 100,000 people in 1989 to 131.6 per 100,000 people in 2000.

Following the 1991 Gulf War, a serious malaria outbreak occurred leading to 94,236 and 98,705 cases in 1994 and 1995 respectively. This epidemic was caused by the vivax strain of the malaria parasite, which is rarely life threatening but can result in a massive disease burden. Risk factors for this outbreak included movement of people from endemic into malaria-free zones, increased population density, delays in access to effective treatment and breakdown of control measures. Although malaria incidence has declined with the institution of vector control programmes (indoor residual spraying to break the transmission cycle) supported by WHO, there is a risk that outbreaks may re-occur if these programmes are interrupted or health care provision is disrupted. Active transmission continues in the north-eastern governorates and current malaria risk exists from May to November with peaks of transmission in May/June and September/November.

Visceral leishmaniasis has increased in central Iraq and the greater Baghdad area as a result of increased density of sandfly vectors, movement of people and deterioration in the health status of the population. Both internal migration (displaced people) or movements of refugees (repatriation programmes) may result in epidemic visceral leishmaniasis.

# 1. ACUTE LOWER RESPIRATORY INFECTIONS (ALRI) CHILDREN BELOW 5 YEARS OF AGE

## DESCRIPTION

<b>Infectious agent</b>	Bacteria: the most common are likely to be <i>Streptococcus pneumoniae</i> and <i>Haemophilus influenzae</i> (and <i>Staphylococcus aureus</i> to a lesser extent).  Several respiratory viruses
<b>Case definition and classification</b>	<p><b>Clinical case definition</b> “Pneumonia” is used at government facilities as an action-oriented classification for management purposes according to the ARI guidelines. It is therefore likely to include lower ARI clinically presenting with similar signs and symptoms, such as pneumonia, bronchiolitis, bronchopneumonia. Wheezing, if present, is also treated. Recently, the country has developed IMCI guidelines, which differ slightly from the ARI guidelines but have not yet been used in training courses.</p> <p><b><u>Children 2 months up to 5 years old:</u></b></p> <ul style="list-style-type: none"> <li>● <b>Pneumonia</b> <i>Symptoms:</i> Cough or difficult breathing; <b>and</b> <i>Signs:</i> 50 or more breaths per minute for infants age 2 months up to 1 year, or 40 or more breaths per minute for children age 1 up to 5 years old; <b>and</b> No chest indrawing, general danger signs, stridor in calm child or severe malnutrition.</li> <li>● <b>Severe pneumonia</b> <i>Symptoms:</i> Cough or difficult breathing <b>and</b> <i>Signs:</i> Chest indrawing <b>and</b> No general danger signs, stridor in a calm child or severe malnutrition.</li> <li>● <b>Very severe disease</b> <i>Symptoms:</i> Cough or difficult breathing <b>and</b> <i>Signs:</i> General danger signs, stridor in a calm child or severe malnutrition.</li> </ul> <p><i>General danger signs:</i> unable to drink or breast feed; convulsions; abnormally sleepy or difficult to wake.</p> <p><b><u>Infants below 2 months of age</u></b></p> <p>Cases are classified as either “Severe Pneumonia” or “Very severe disease”, as the illness may progress rapidly in this age group and it may be difficult to differentiate “pneumonia” from other severe conditions requiring hospital management.</p> <ul style="list-style-type: none"> <li>● <b>Severe pneumonia</b> <i>Symptoms:</i> Cough or difficult breathing <b>and</b> <i>Signs:</i> 60 or more breaths per minute, <i>or</i> severe chest indrawing, <b>and</b> No general danger signs<sup>1</sup>, wheezing, stridor in calm child or fever or low body temperature.</li> <li>● <b>Very severe disease</b> <i>Symptoms:</i> Cough or difficult breathing <b>and</b> <i>Signs:</i> General danger signs, wheezing, stridor in a calm child or fever or low body temperature.</li> </ul> <p><sup>1</sup>The sign ‘stopped feeding well’ in young infants replaces ‘unable to drink’ of the older children as a danger sign.</p>

<b>Mode of transmission</b>	Airborne
<b>Incubation</b>	Depends on the infective agent. Usually 2-5 days.
<b>Period of communicability</b>	Depends on the infective agent. Usually during the symptomatic phase.

## EPIDEMIOLOGY

<b>Burden</b>	<p>Acute respiratory infections, especially pneumonia, are the leading causes of death in children less than five years of age.</p> <ul style="list-style-type: none"> <li>➤ 2000: 152,932 reported cases of pneumonia among children under 5 years (32,003 in 1990)</li> <li>➤ According to a survey conducted in government health facilities in 6 governorates, of the &lt;5 year olds registered, 16% had pneumonia and 7% had severe illness (very severe disease or severe pneumonia). Reports to the Ministry of health of ARI cases – including pneumonia, malnutrition and vaccine-preventable diseases in children under five – have increased since international sanctions were imposed in the past decade.</li> <li>➤ UNICEF surveys conducted in June 2001 showed that in Northern governorates (Dohouk, Erbil, Suleimaniyah) 25% of children under 5 years had ALRI in the two weeks prior to the survey (17.2% in June 2000; 12% in October 2000).</li> </ul>
<b>Geographical distribution</b>	Throughout the country
<b>Seasonality</b>	ALRI rates are higher in winter than in summer.
<b>Alert threshold</b>	An increase in the number of cases above what is expected
<b>Recent epidemics</b>	No data available

## RISK FACTORS FOR INCREASED TRANSMISSION

<b>Population movement</b>	<b>Yes</b>	Movements of non-immune populations into areas of new pathogens
<b>Overcrowding</b>	<b>Yes</b>	Very important
<b>Poor access to health services</b>	<b>Yes</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Physical access to health services is generally good. However, turnover of government health providers including those trained in ARI may have been increasing in recent years; this coupled with other problems related to the sanctions – including also opportunities for upgrading medical knowledge and skills - has adversely affected the quality of health services.</li> <li><input type="checkbox"/> Prompt identification and treatment of the cases is the most important control measure</li> </ul>

<b>Food shortages</b>	<b>No</b>	<p>However, malnutrition can play a major role on the susceptibility to infection and development of disease.</p> <p>Food security has been dependent on rations often inadequate for most Iraqis: thus food insecurity is likely to occur especially among the poor and be influenced by the problems related to the sanctions. Additional risk factors include: poor breastfeeding practices (less than 20% of infants under 4 months of age are exclusively breastfed), inadequate complementary feeding practices, and malnutrition (including also low birth weight).</p>
<b>Lack of safe water and poor sanitation</b>	<b>Yes</b>	<p>The damage caused by the 1991 war to the water supply system and power plants, which also affected wastewater treatment facilities and sanitation services, coupled with the sanctions and natural phenomena (e.g., drought) adversely affected availability of safe water and adequate sanitation in the past decade. The country has not yet recovered from that damage; currently, rural areas are likely to be more affected than urban areas.</p>
<b>Others</b>	<b>Yes</b>	<p>Low temperatures, especially in the North, may increase the relative risk of children's acquiring pneumonia.</p>
<b>Risk assessment conclusions</b>		<p>ALRI represent the leading cause of death in children under 5 in Iraq. The consequences of sanctions, food insecurity, inadequate feeding practices, malnutrition, and limited access to <i>quality</i> health care are likely to increase children's risk to illness and death, especially among rural populations and the poor. In this scenario with high rates of malnutrition and low birth weight, a child's risk of dying of pneumonia is substantially increased.</p>

## PREVENTION AND CONTROL MEASURES

<b>Case Management</b>	<ul style="list-style-type: none"> <li>• Priority is early recognition and adequate treatment of cases</li> <li>• First-line antibiotic for cases in under-fives classified as <i>pneumonia</i> is <u>amoxycillin</u>; second-line antibiotics are <u>cotrimoxazole</u>, <u>ampicillin</u> and, used less frequently, <u>procaine penicillin</u>. The IMCI guidelines under development propose the use of <u>cephalexin</u> and <u>erythromycin</u> as first and second line antibiotics, respectively, for young infants; and intramuscular <u>cefotaxime</u> as pre-referral antibiotic for severe under-five cases that cannot take oral antibiotic (intramuscular <u>benzylpenicillin</u> and <u>gentamicin</u> are options for infants under 2 months of age).</li> <li>• Supportive measures such as continued feeding to avoid malnutrition, antipyretics to reduce high fever and protection from cold (especially keeping young infants warm) are part of the management.</li> <li>• Proper advice is given to caretakers of non-severe cases on home care, including compliance with antibiotic treatment instructions.</li> <li>• Signs of malnutrition are assessed as this increases the risk of death due to pneumonia. Severely malnourished children are referred to hospital.</li> </ul>
<b>Prevention</b>	<p>It mostly focuses on secondary prevention, as prompt identification and treatment of cases is the most important control measure:</p> <ul style="list-style-type: none"> <li>• Adequate feeding, including exclusive breastfeeding, to avoid malnutrition</li> <li>• Health education on early danger signs for prompt care-seeking</li> </ul>
<b>Immunization</b>	<ul style="list-style-type: none"> <li>• Measles, diphtheria and whooping cough immunization are effective to reduce impact of ALRI.</li> </ul>

## 2. ANTHRAX

### DESCRIPTION

<b>Infectious agent</b>	Bacterium: spore-forming <i>Bacillus anthracis</i> . Free oxygen is required for sporulation (i.e. production of spores), but other conditions are also important: temperature, nutrient levels, and soil conditions. <i>B. anthracis</i> remains in vegetative non-spore form within the anaerobic environment of the infected host.
<b>Case definition and classification</b>	<p><b><u>Clinical description:</u></b> An illness with acute onset characterized by several clinical forms:</p> <p>(a) Localized:</p> <ul style="list-style-type: none"> <li>• <b><i>Cutaneous</i></b>: skin lesion evolving over 1 to 6 days from a papular through a vesicular stage, to a depressed black eschar invariably accompanied by oedema that may be mild to extensive. This form accounts for 95% or more of human cases globally. The case-fatality rate is 20% without, and &lt;1% with, antibiotic treatment.</li> </ul> <p>(b) Systemic:</p> <ul style="list-style-type: none"> <li>• <b><i>Gastrointestinal</i></b>: abdominal distress characterized by nausea, vomiting, anorexia and followed by fever. The case-fatality rate is estimated to be 25-60%. The effect of early antibiotic treatment on the case-fatality rate is not established.</li> <li>• <b><i>Inhalational (pulmonary)</i></b>: brief prodrome resembling acute viral respiratory illness, followed by rapid onset of hypoxia, dyspnoea and high temperature, with X-ray evidence of mediastinal widening. Case-fatality estimates are extremely high (&gt;75%), even with all possible supportive care including appropriate antibiotics.</li> </ul> <p><b><u>Laboratory criteria:</u></b> Laboratory confirmation by <b>one or more</b> of the following:</p> <ul style="list-style-type: none"> <li>• Isolation of <i>B. anthracis</i> from a clinical specimen (e.g. blood, lesions, discharges)</li> <li>• Demonstration of <i>B. anthracis</i> in a clinical specimen by microscopic examination of stained smears (vesicular fluid, blood, cerebrospinal fluid, pleural fluid, stools)</li> <li>• Positive serology (ELISA, Western blot, toxin detection, chromatographic assay, fluorescent antibody test)</li> </ul> <p><i>NOTE: it may not be possible to demonstrate B. anthracis in specimens if the patient has been treated with antibiotics.</i></p> <p><b><u>Case classification:</u></b></p> <ul style="list-style-type: none"> <li>• <b>Suspected</b>: A case that is compatible with the clinical description and has an epidemiological link to confirmed or suspected animal cases or contaminated animal products.</li> <li>• <b>Probable</b>: A suspected case with a positive reaction to allergic skin test (in non-vaccinated individuals)</li> <li>• <b>Confirmed</b>: A suspected case that is laboratory confirmed</li> </ul>
<b>Mode of transmission</b>	<p>It is largely through the uptake of spores that humans contract the infection, almost invariably from direct or indirect contact with animals: The routes of acquisition are:</p> <ul style="list-style-type: none"> <li>• <b>A skin lesion (cutaneous anthrax):</b> Cutaneous infection is by contact with tissues of infected animals (cattle, sheep, goats, etc.) often during slaughter procedures or by contact with infected or contaminated animal products (e.g. hides). Person-to-person transmission has occurred, but only very rarely</li> <li>• <b>Ingestion of contaminated food (gastrointestinal anthrax):</b> Intestinal and oropharyngeal anthrax arises from ingestion of contaminated undercooked meat</li> <li>• <b>Inhalation of spore-laden dust (inhalational or pulmonary anthrax):</b> Inhalational anthrax is usually an occupational disease of people working with contaminated wool, hides, bones and other animal products.</li> </ul> <p><i>NOTE: mechanical transmission by biting insects is a rare mechanism of transmission.</i></p>

<b>Incubation</b>	From 1 to 7 days, even if up to 60 days is possible
<b>Period of communicability</b>	Related to the presence of infected animals. Direct transmission from person to person is very rare (cutaneous form only). Hides and soil contaminated by spores may remain infectious for decades.

### EPIDEMIOLOGY

<b>Burden</b>	<p><b>Number of (human) cases reported:</b></p> <p><b>Iraq</b> No recent data available 1976 200 cases 1980 269 cases</p> <p><b>Islamic Republic of Iran</b> 1999 220 cases</p> <p><b>Jordan</b> 2001 0 cases 2000 0 cases 1999 0 cases 1998 0 cases 1997 0 cases 1996 0 cases</p> <p><b>Kuwait</b> 2001 0 cases 2000 0 cases 1999 0 cases 1998 0 cases 1997 0 cases 1996 0 cases</p> <p><b>Saudi Arabia</b> No data available</p> <p><b>Syrian Arab Republic</b> 2001 0 cases 2000 No data available 1990 1 case</p> <p><b>Turkey</b> 2001 532 cases 2000 396 cases 1999 460 cases 1998 404 cases 1997 690 cases 1996 457 cases</p>
<b>Geographical distribution</b>	<p><b>Animal anthrax</b> is present throughout the Middle East. It is endemic in Iraq, Iran and Syria; sporadic in Jordan, Kuwait and Saudi Arabia; hyperendemic/epidemic in Turkey.</p> <p><b>Human anthrax</b> has been reported from Iraq, Iran, Syria and Turkey.</p>
<b>Seasonality</b>	Animal anthrax outbreaks due to soil-borne infections usually occur during warmer seasons.
<b>Alert threshold</b>	<p>One human case must lead to an alert</p> <p>Any animal outbreak must be followed up by the veterinary and public health authorities</p>
<b>Recent epidemics</b>	<p>Outbreaks of animal anthrax occur almost every year in Iran, Turkey and Jordan, especially among ovines (e.g. sheep). Last animal outbreaks in Kuwait were reported in 1993, in Syria in 2000. No data available on Iraq and Saudi Arabia.</p> <p>No data are available on human outbreaks, but high numbers of cases are known to occur yearly in Iran and Turkey.</p>

### RISK FACTORS FOR INCREASED TRANSMISSION

<b>Population movement</b>	No	
<b>Overcrowding</b>	No	
<b>Poor access to health services</b>	Yes	Lack of veterinary services, especially effective animal vaccination programmes
<b>Food shortages</b>	Yes	Consumption of anthrax-contaminated meat from infected animals

<b>Lack of safe water and poor sanitation</b>	<b>No</b>	
<b>Others</b>	<b>Yes</b>	<ul style="list-style-type: none"> <li>• Slaughter of dead animals</li> <li>• Lack of disinfection of contaminated areas</li> </ul>
<b>Risk assessment conclusions</b>		If not present in animals, very low risk of epidemics in human. <i>Bacillus anthracis</i> is one of the most suitable agents for biological warfare, and the risk of its potential use exists.

## PREVENTION AND CONTROL MEASURES

<b>Case Management</b>	<p>Penicillin remains the drug of choice. It can be administered orally in milder cases; in more severely ill patients, systemic administration is required.</p> <p><b>Mild uncomplicated cases</b> (<i>cutaneous anthrax without systemic involvement</i>)</p> <ul style="list-style-type: none"> <li>- Penicillin V, 500mg every 6 hours for 5-7 days orally, <b>or</b></li> <li>- Procaine penicillin, 1 million units intramuscularly every day for 3-7 days</li> </ul> <p><b>Severe cases</b> (<i>including all forms of systemic anthrax</i>)*</p> <p>Initially (until temperature returns to normal):</p> <ul style="list-style-type: none"> <li>- Penicillin G, 2 million units per day in: <ul style="list-style-type: none"> <li>▪ Slow (&lt;300 mg/minute) intravenous injections of 0.5 million units every 6 hours, <b>or</b></li> <li>▪ Intravenous perfusion</li> </ul> </li> </ul> <p>When temperature returns to normal:</p> <ul style="list-style-type: none"> <li>- Procaine penicillin, 1 million units intramuscularly every day for 3-7 days</li> </ul> <p>(* Antibiotic therapy is less effective when the bacillus has produced high levels of toxin; gammaglobulin may be effective in such cases, where otherwise lethal levels of anthrax toxin have already accumulated.</p> <p>Prompt antibiotic therapy with penicillin usually results in dramatic recovery of the individual infected with anthrax if given before onset or immediately after onset of illness. Tetracyclines, erythromycin, chloramphenicol, ciprofloxacin and doxycycline are also effective.</p> <p>☉ Strains resistant to penicillin will tend to be used for biological warfare: in this situation the drug of choice is <u>ciprofloxacin</u>.</p> <p><b>Cutaneous anthrax:</b></p> <p>Ciprofloxacin 500mg twice daily (orally) for 7 days. This can be changed to oral amoxicillin if the organism is found to be sensitive. Treatment may need to be continued for up to 60 days if there is suspicion of deliberate release in order to provide cover for inhalational anthrax, which may have been acquired concurrently.</p> <p><b>Inhalational (pulmonary) and gastrointestinal anthrax:</b></p> <p><u>Adults:</u></p> <ul style="list-style-type: none"> <li>- Ciprofloxacin 400mg every 12 hours (intravenously) for 60 days. Switch to oral therapy (see cutaneous anthrax) when clinically appropriate.</li> </ul> <p><b>or (if strain is proven susceptible)</b></p> <ul style="list-style-type: none"> <li>- Benzylpenicillin 2.4g every 4 hours (intravenously) for 60 days. Switch to oral therapy (see cutaneous anthrax) when clinically appropriate.</li> </ul> <p><u>Children:</u></p> <ul style="list-style-type: none"> <li>- Ciprofloxacin 20-30 mg/kg per day (intravenously) divided into 2 daily doses, not to exceed 1g per day, for 60 days. Switch to oral therapy (see cutaneous anthrax) when clinically appropriate.</li> </ul> <p><b>or (if strain is proven susceptible)</b></p> <ul style="list-style-type: none"> <li>- Age &lt;12 years: Benzylpenicillin 30 mg/kg every 6 hours (intravenously) for 60 days</li> <li>- Age ≥12 years: Penicillin G 2.4g every 4 hours (intravenously) for 60 days</li> </ul> <p><u>Pregnancy:</u></p> <p>Same as for non pregnant adult</p> <p>NOTE: <i>Ciprofloxacin is not licensed for use in children or pregnant women</i></p>
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<b>Epidemic control</b>	<p><b>Animal outbreaks:</b> Following the first detection of anthrax in a herd, the following control measures can be considered:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Quarantine of animals on farms where cases have been confirmed and regular check for signs of illness</li> <li><input type="checkbox"/> Vaccination of all livestock on the farm and adjacent areas</li> <li><input type="checkbox"/> Treatment of animals with antibiotics</li> <li><input type="checkbox"/> Isolation and destruction of infected animals</li> <li><input type="checkbox"/> Incineration or burial of infected carcasses</li> <li><input type="checkbox"/> Disinfection of the premises (e.g. with formaldehyde)</li> </ul> <p>In the case of animal outbreaks, the following precautions must be taken for exposed humans:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Check vaccination status and administer booster if needed</li> <li><input type="checkbox"/> Use protective clothing (and face masks if there is a risk of aerosols)</li> <li><input type="checkbox"/> Disinfect and dress any cuts and abrasions before putting on protective clothing</li> <li><input type="checkbox"/> Avoid blood-spilling operations on infected/suspected animals/carcasses</li> </ul> <p><b>Human outbreaks:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Report to local health authority and livestock/agriculture authority. Consider reporting to law enforcement authorities for consideration of a bioterrorist source.</li> <li><input type="checkbox"/> Treat and manage patient taking Universal Precautions (see <i>Prevention of HIV/AIDS</i>) for the duration of illness. Isolation rooms are not required.</li> <li><input type="checkbox"/> Investigate contacts and source of infection. Search for history of exposure to infected animals or animal products and trace to place of origin. If possible, seal the suspected locations of exposure to prevent further contact. Consider a potential bioterrorist source for those cases with no obvious occupational source of infection.</li> <li><input type="checkbox"/> When the source of infection has been ascertained, remove the offending material in order to prevent further infections (especially in case of outbreaks linked to consumption of infected meat or occupational exposure).</li> </ul> <p>☛ <i>For both humans and animals, report suspicious symptoms immediately</i></p>
<b>Prevention</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Prevention of human anthrax depends upon prevention of animal anthrax and public awareness programmes regarding the dangers of contacting contaminated animals or their meat and products.</li> <li><input type="checkbox"/> Preventive measures in livestock in endemic areas are essential: these include regular vaccination programmes and the safe disposal of anthrax-infected carcasses. The most efficient method of disposal of infected carcasses is incineration in a manner that ensures heat sterilization of the surrounding soil</li> </ul>
<b>Immunization</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Vaccines have been developed for human use, but they are not approved for widespread use.</li> <li><input type="checkbox"/> Vaccines are sometimes given to people who are likely to be exposed to anthrax through their occupation, for example, tannery workers, or to military personnel</li> <li><input type="checkbox"/> They are not recommended for mass immunization</li> </ul>

### 3. BACILLARY DYSENTERY (SHIGELLOSIS)

#### DESCRIPTION

<b>Infectious agent</b>	Bacterium: Genus <i>Shigella</i> , of which <i>Shigella dysenteriae</i> type 1 causes the most severe disease and is the only strain responsible for epidemics
<b>Case definition and classification</b>	<p><b>Suspected case (clinical case definition)</b> Diarrhoea with visible blood in the stools</p> <p><b>Confirmed case</b> A case corresponding to the clinical case definition with isolation of <i>Shigella</i> from stools</p>
<b>Mode of transmission</b>	Fecal-oral route, particularly contaminated water and food
<b>Incubation</b>	Incubation period is usually 1-3 days. May be up to one week for <i>S. dysenteriae</i> type 1.
<b>Period of communicability</b>	During acute infection and until 4 weeks after illness (without treatment). With appropriate treatment 2-3 days. Asymptomatic carriers exist

#### EPIDEMIOLOGY

<b>Burden</b>	<p>According to a survey conducted in 26 hospitals and 33 health centres in 6 governorates in 1997, 12% of children aged between 2 months and 5 years seen at health facilities had blood in their stools.</p> <p>According to Ministry of Health reports, 19,615 cases of dysentery were reported in 1989 before the Gulf Crisis compared to 62,862 cases in 1993.</p>
<b>Geographical distribution</b>	Throughout the country
<b>Seasonality</b>	Cases are distributed all over the year. Seasonal incidence patterns are not constant over years.
<b>Alert threshold</b>	Five or more linked cases must be investigated further.
<b>Recent epidemics</b>	No data available

#### RISK FACTORS FOR INCREASED TRANSMISSION

<b>Population movement</b>	<b>Yes</b>	Spreading of the infectious agent
<b>Overcrowding</b>	<b>Yes</b>	Very important
<b>Poor access to health services</b>	<b>Yes</b>	<input type="checkbox"/> Early detection and containment of the cases are paramount to reduce transmission. <input type="checkbox"/> In absence of proper treatment, case fatality rate with <i>S. dysenteriae</i> type 1 can be as high as 10% in children under 10 years-old.
<b>Food shortages</b>	<b>No</b>	<input type="checkbox"/> However, malnutrition increases gastrointestinal tract susceptibility to invasiveness of the organism and severity of disease. <input type="checkbox"/> In the health facility survey mentioned above, nearly half (46%) of all diarrhoea cases below 5 years old seen at the 59 facilities surveyed, were malnourished (12% were classified as with severe malnutrition), based on weight-for-age.

<b>Lack of safe water and poor sanitation</b>	<b>Yes</b>	The most important risk factor.
<b>Others</b>	<b>No</b>	
<b>Risk assessment conclusions</b>		Risk of epidemics of <i>S. dysenteriae</i> type 1 is high in refugee camps (up to one third of the population at risk may be affected)  In the general population the risk is strictly related to the lack of availability of safe water

## PREVENTION AND CONTROL MEASURES

<b>Case Management</b>	<ul style="list-style-type: none"> <li>□ Early and appropriate therapy is very important: treatment with an effective <u>antimicrobial</u> can reduce the severity and duration of shigellosis. The national guidelines have advised the use of cotrimoxazole (first choice) or ampicillin or nalidixic acid (second choices) for the treatment of children 2 months up to 5 years old with bloody stools. The IMCI guidelines in Iraq (under development) recommend that the following cases of bloody stools in under 5 year-olds should be referred promptly to hospital: <ul style="list-style-type: none"> <li>• All children under two months of age;</li> <li>• Any child with severe malnutrition;</li> <li>• Febrile and toxic children.</li> </ul> </li> <li>□ Supportive treatment using <u>ORS</u>, <u>continued feeding</u> (frequent small meals) and <u>antipyretics</u> to reduce high fever are also essential.</li> <li>□ Proper advice is given to caretakers of non-severe cases under five years old on home care, including compliance with antibiotic treatment instructions and feeding advice.</li> <li>□ In general, the problem of rapid acquisition of multidrug antimicrobial resistance in the treatment of <i>Shigella</i> dysentery is a cause of concern. Dysentery patients should receive an antibiotic to which Sd1 from local cases has been shown to be sensitive: laboratories should be able to determine antimicrobial sensitivity patterns of Sd1 so that rational policies for the use of antimicrobials may be developed.</li> <li>□ <i>S. dysenteriae</i> type 1 is often more severe or fatal in young children, the elderly, and the malnourished, and prompt treatment with antibiotics is essential. If in short supply, antibiotics should be reserved for such high-risk groups.</li> </ul>
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<b>Epidemic control</b>	<ul style="list-style-type: none"> <li>❑ Inform the Health Authorities if one or more suspected cases are identified. Early detection and notification of epidemic dysentery, especially among adults allows for timely mobilization of resources needed for appropriate case management and control.</li> <li>❑ Confirm the outbreak, following WHO guidelines.</li> <li>❑ Rectal swabs from suspected cases should be collected and shipped refrigerated to laboratories in an appropriate medium (e.g. Cary Blair medium) for culture to confirm the diagnosis of Sd1. It is recommended that at least 10 cases be used to confirm the cause, identify antibiotic sensitivity and verify the outbreak. Once confirmed, it is not necessary to obtain laboratory confirmation for every patient.</li> <li>❑ Testing of Sd1 isolates for antimicrobial sensitivity should be done at regular intervals to determine whether treatment guidelines remain appropriate. International referral laboratories are available to assist in identification of the organism and confirmation of the anti-microbial resistance pattern.</li> <li>❑ Do not wait for laboratory results before starting treatment/control activities</li> </ul>
<b>Prevention</b>	<p><b>See:</b></p> <ul style="list-style-type: none"> <li>• Section on <i>Diarrhoeal Diseases</i></li> <li>• <i>Annex 3 : Safe Water and Sanitation</i></li> <li>• <i>Guidelines for the control of epidemics due to Shigella dysenteriae type 1</i> (available online at: <a href="http://www.who.int/emc-documents/cholera/whocdr954c.html">http://www.who.int/emc-documents/cholera/whocdr954c.html</a>)</li> </ul>

## 4. CHOLERA

### DESCRIPTION

<b>Infectious agent</b>	Bacterium: <i>Vibrio cholerae</i>
<b>Case definition and classification</b>	<p><b>A cholera outbreak should be suspected if:</b></p> <ul style="list-style-type: none"> <li>• A patient older than 5 years develops severe dehydration or dies from acute watery diarrhoea (<i>clinical case definition</i>); <b>or</b></li> <li>• There is a sudden increase in the daily number of patients with acute watery diarrhoea, especially patients who pass the “rice water” stools typical of cholera.</li> </ul> <p><b>Confirmed case</b> Isolation of <i>Vibrio cholerae</i> O1 or O139 from stools in any patient with diarrhoea.</p>
<b>Mode of transmission</b>	<p>Fecal oral route.</p> <p>Main modes of transmission:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Drinking contaminated water</li> <li><input type="checkbox"/> Eating food (fruits and vegetables) contaminated through: <ul style="list-style-type: none"> <li>• Water</li> <li>• Night soil</li> <li>• Contamination <i>during</i> preparation (rice, millet, food from street vendors)</li> </ul> </li> <li><input type="checkbox"/> Contaminated seafood</li> <li><input type="checkbox"/> Indirect contamination (hands)</li> </ul>
<b>Incubation</b>	Incubation period is usually a few hours to 5 days
<b>Period of communicability</b>	During the symptomatic phase until 2-3 days after recovery. Very rarely for months.

### EPIDEMIOLOGY

<b>Burden</b>	<p><b>Number of cases reported:</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><b>2002:</b> 718 cases till end August</td> <td style="width: 50%;"><b>1996:</b> 831 cases</td> </tr> <tr> <td><b>2001:</b> 560 cases</td> <td><b>1995:</b> 1,216 cases</td> </tr> <tr> <td><b>2000:</b> 757 cases</td> <td><b>1994:</b> 1,345 cases</td> </tr> <tr> <td><b>1999:</b> 2,398 cases</td> <td><b>1993:</b> 825 cases</td> </tr> <tr> <td><b>1998:</b> 2,560 cases</td> <td><b>1992:</b> 976 cases</td> </tr> <tr> <td><b>1997:</b> 486 cases</td> <td><b>1991:</b> 1,217 cases</td> </tr> </table>	<b>2002:</b> 718 cases till end August	<b>1996:</b> 831 cases	<b>2001:</b> 560 cases	<b>1995:</b> 1,216 cases	<b>2000:</b> 757 cases	<b>1994:</b> 1,345 cases	<b>1999:</b> 2,398 cases	<b>1993:</b> 825 cases	<b>1998:</b> 2,560 cases	<b>1992:</b> 976 cases	<b>1997:</b> 486 cases	<b>1991:</b> 1,217 cases
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<b>1997:</b> 486 cases	<b>1991:</b> 1,217 cases												
<b>Geographical distribution</b>	Throughout the country, especially in rural areas. It was reported that in the period following the 1991 Gulf crisis, cholera had become endemic in all governorates.												
<b>Seasonality</b>	Throughout the year; higher incidence from April to November												
<b>Alert threshold</b>	Any suspected case must be investigated.												
<b>Recent epidemics</b>	<p>2002 – 718 cases were reported till end August, most of the cases occurring during June-August</p> <p>1998 – In the period 12 September – 6 October 20 cholera cases and 1 death (CFR=5%) were reported from the Suleimaniyah governorate.</p>												

**RISK FACTORS FOR INCREASED TRANSMISSION**

<b>Population movement</b>	<b>Yes</b>	Spreading of the infectious agent.
<b>Overcrowding</b>	<b>Yes</b>	Very important
<b>Poor access to health services</b>	<b>Yes</b>	Early detection and containment of the cases are paramount to reduce transmission
<b>Food shortages</b>	<b>No</b>	
<b>Lack of safe water and poor sanitation</b>	<b>Yes</b>	The most important risk factor
<b>Others</b>	<b>No</b>	
<b>Risk assessment conclusions</b>		<p>The extensive destruction of electricity-generating, water-purification and sewage-treatment plants during the six-weeks of the 1991 war, and the subsequent delay or incomplete repair of these facilities, coupled with overcrowding and a lack of sanitary facilities leading to a lack of personal hygiene, have been responsible for occurrence of cholera outbreaks and a rise in incidence of other enteric infections.</p> <p>While before 1991 the country had a well-developed water and sanitation system (90% of the urban and 70% of the rural population was estimated to have access to safe drinking water), in 2000 drinking water was accessible only to 50% of urban and 33% of rural populations in south/centre Iraq.</p>

**PREVENTION AND CONTROL MEASURES**

<b>Case Management</b>	<ul style="list-style-type: none"> <li>The mainstay of cholera case management is the <u>treatment of dehydration</u>, using ORS or IV fluids (ringer lactate)</li> <li>Use of antibiotics (doxycycline/tetracycline) is not essential for disease treatment but may be used to reduce the volume of the diarrhoea (and of the rehydration solutions required), and to shorten its duration and the period of vibrio excretion. Antibiotics selected in the IMCI guidelines under development for children under five years old with cholera in Iraq are tetracycline (first line antibiotic) and erythromycin (second-line antibiotic). However, antimicrobial sensitivity pattern should be assessed in order to select the appropriate antibiotic.</li> <li>Case fatality rate can be extremely high (from 5% up to 40%) in absence of a proper treatment</li> </ul>
<b>Epidemic control</b>	<ul style="list-style-type: none"> <li>Inform the Health Authorities immediately if one or more suspected cases are identified</li> <li>Confirm the outbreak, following WHO guidelines. Stool samples must be taken with a rectal swab and transported in Cary Blair medium. If a transport medium is not available, a cotton-tipped rectal swab can be soaked in the liquid stool, placed in a sterile plastic bag, tightly sealed, and sent to the laboratory. It is recommended that at least 10 cases be used to confirm the cause, identify antibiotic sensitivity and verify the outbreak. Once confirmed, it is not necessary to obtain laboratory confirmation for every patient. <ul style="list-style-type: none"> <li><b><i>Do not wait for laboratory results before starting treatment/control activities</i></b></li> <li>➔ Ensure prompt treatment and confirm the diagnosis</li> <li>➔ Isolate cases in cholera treatment centres</li> <li>➔ Provide adequate health education</li> <li>➔ Ensure access to safe water and proper sanitation</li> </ul> </li> </ul>

<b>Prevention</b>	<b>See:</b> <ul style="list-style-type: none"><li>❑ Section on <i>Diarrhoeal Diseases</i></li><li>❑ <i>Annex 3 : Safe Water and Sanitation</i></li><li>❑ <i>Guidelines for Cholera Control, WHO 1993</i></li></ul>
<b>Immunization</b>	<p>Two oral vaccines are currently available:</p> <ul style="list-style-type: none"><li>• Killed cholera vaccine (WC/rBS, two doses); and</li><li>• Live attenuated vaccine (CVD103- HgR, single dose)</li></ul> <p>They are licensed in a few countries only, and are still very expensive. Both might be used in carefully evaluated emergency situations, such as refugee camps or slum residents.</p> <p>Cholera vaccines can complement, but cannot replace conventional control measures.</p> <p><b>See also:</b> <i>Potential use of cholera vaccines in emergency situations. WHO, 1999 (WHO/CDS/EDC/99.4)</i></p>

## 5. CRIMEAN-CONGO HAEMORRHAGIC FEVER

### DESCRIPTION

<b>Infectious agent</b>	The Crimean-Congo Haemorrhagic Fever (CCHF) Virus, <i>Nairovirus</i> group
<b>Case definition and classification</b>	<p><b>Clinical case definition</b></p> <ul style="list-style-type: none"> <li>- Sudden onset of fever, malaise, weakness, irritability, headache, severe pain in limbs and loins (lower back), and marked anorexia.</li> <li>- Vomiting, abdominal pain and diarrhoea occur occasionally.</li> <li>- Flush on face and chest and conjunctival injection develop early.</li> <li>- Haemorrhagic enanthem of soft palate, uvula and pharynx, and a fine petechial rash spreading from the chest and abdomen to the rest of the body are generally associated with the disease.</li> <li>- There may be bleeding from gums, nose, lungs, uterus and intestine, but only in serious or fatal cases, associated with severe liver damage.</li> </ul> <p><b>Confirmed case</b></p> <p>A clinical case of CCHF can be laboratory confirmed by the following tests:</p> <ul style="list-style-type: none"> <li>- IgG and IgM antibodies detection in serum by enzyme-linked immunoassay ("ELISA" or "EIA" methods) from about day six of illness <b>or</b></li> <li>- Antigen or virus detection (PCR, ELISA, immunohistochemistry) in blood or/and tissue samples <b>or</b></li> <li>- Viral isolation of CCHF virus in serum or tissue</li> </ul>
<b>Mode of transmission</b>	Tick-borne ( <i>Hyalomma</i> genus); also direct and aerosol exposure to blood/tissue of infected people/animals, contact with infected domestic animals (butcher) or the grinding of infected ticks. The majority of cases have occurred in those involved with the livestock industry, such as agricultural workers, slaughterhouse workers and veterinarians. Nosocomial spread is common.
<b>Incubation</b>	The length of the incubation period of the illness appears to depend on the mode of acquisition of the virus. Following infection via tick bite, the incubation period is usually 1 to 3 days, with a maximum of 9 days. The incubation period following contact with infected blood or tissues is usually 5 to 6 days, with a documented maximum of 13 days.
<b>Period of communicability</b>	Humans are infective during all the acute phase of illness. Nosocomial infections are common after exposure to blood and secretions.

### EPIDEMIOLOGY

<b>Burden</b>	<p><b>Number of cases of haemorrhagic fever* reported (incidence rate per 100,000):</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><b>2001:</b> 4 (0.02)</td> <td style="width: 50%;"><b>1994:</b> 39 (0.19)</td> </tr> <tr> <td><b>2000:</b> 4 (0.02)</td> <td><b>1993:</b> 48 (0.24)</td> </tr> <tr> <td><b>1999:</b> 2 (0.01)</td> <td><b>1992:</b> 65 (0.34)</td> </tr> <tr> <td><b>1998:</b> 2 (0.01)</td> <td><b>1991:</b> 196 (1.00)</td> </tr> <tr> <td><b>1997:</b> 11 (0.05)</td> <td><b>1990:</b> 42 (0.22)</td> </tr> <tr> <td><b>1996:</b> 48 (0.22)</td> <td><b>1989:</b> 38 (0.21)</td> </tr> <tr> <td><b>1995:</b> 48 (0.23)</td> <td></td> </tr> </table> <p>(* this includes CCHF).</p>	<b>2001:</b> 4 (0.02)	<b>1994:</b> 39 (0.19)	<b>2000:</b> 4 (0.02)	<b>1993:</b> 48 (0.24)	<b>1999:</b> 2 (0.01)	<b>1992:</b> 65 (0.34)	<b>1998:</b> 2 (0.01)	<b>1991:</b> 196 (1.00)	<b>1997:</b> 11 (0.05)	<b>1990:</b> 42 (0.22)	<b>1996:</b> 48 (0.22)	<b>1989:</b> 38 (0.21)	<b>1995:</b> 48 (0.23)	
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<b>Geographical distribution</b>	Throughout the Middle East. However, CCHF cases have never been reported neither from Jordan nor Syria.														
<b>Seasonality</b>	Linked to the period of vector activity (spring to fall). In Russia, the higher incidence was observed between June and September; in Iran, it was observed between May and September.														
<b>Alert threshold</b>	One case must lead to an alert														

<b>Recent epidemics</b>	<b>Iraq</b> No data available
	<b>Iran</b> <i>January-July 2002</i> 41 cases including 6 deaths. Most cases from Sistan-Baluchistan; other provinces involved : Isfahan, Tehran, Khuzestan, Chaharmahal-Bakhtiari, Yazd and Fars
	<i>April-October 2001</i> 36 cases including 4 deaths
	<i>January 2000</i> 50 suspected cases (22 confirmed) including 4 deaths
	<b>Jordan</b> CCHF has never been reported from Jordan
	<b>Kuwait</b> A survey conducted in two hospitals between 1979 and 1982 indicated that 4% of the patients had antibodies against CCHF virus (CCHFV).
	<b>Saudi Arabia</b> The disease was not reported in Saudi Arabia (although tick vectors of the virus were widely endemic) until 1990, when an outbreak of CCHF involved 7 abattoir workers with 5 fatalities in Mecca, in the Western Province. Further sporadic cases occurred later in Jeddah and Taif. It is possible that sporadic cases had occurred previously but were not diagnosed. On the other hand, it is also possible that the virus was introduced to the region in 1990 through Jeddah seaport, where imported livestock from many parts of the world (including those where CCHF is known to occur) are landed. A study conducted in Mecca abattoirs between 1991 and 1993 revealed that 13% of workers had antibodies against CCHFV. A survey conducted in Jeddah seaport amongst imported livestock and persons working on farms or in quarantine stations showed highest prevalence of CCHFV antibodies amongst small ruminants (sheep:4.1%; goats:3.2%), particularly those imported from Sudan, Only 0.8% of humans had CCHFV antibodies.
	<b>Syrian Arab Republic</b> CCHF has never been reported from Syria
	<b>Turkey</b> CCHF is known to be present in Turkey, but no data are available.

### RISK FACTORS FOR INCREASED TRANSMISSION

<b>Population movement</b>	<b>Yes</b>	Related to the higher probability of being bitten by ticks
<b>Overcrowding</b>	<b>Yes</b>	Living in close contact with animals
<b>Poor access to health services</b>	<b>Yes</b>	Prompt identification of the cases is paramount to rapidly implement the control measures and for successful treatment
<b>Food shortages</b>	<b>No</b>	
<b>Lack of safe water and poor sanitation</b>	<b>No</b>	
<b>Others</b>	<b>No</b>	

<b>Risk assessment conclusions</b>	<p>The risk of mass epidemics, both for the general population and the refugees, is remote. The normal pattern of sporadic cases is likely to continue.</p> <p>CCHF was recognized for the first time in Iraq in 1979. 10 patients were diagnosed clinically; virus isolations were obtained from two patients.</p> <p>The range of the CCHF virus is now known to extend from central Asia to India, Pakistan, Afghanistan, Iran, Iraq, Persian Gulf countries, the Middle East, eastern Europe, and to most of Saharan and sub-Saharan Africa. In the Middle East, sporadic cases and localized outbreaks of CCHF are reported yearly from Afghanistan, Islamic Republic of Iran, Pakistan, and Iraq.</p>
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## PREVENTION AND CONTROL MEASURES

<b>Prevention</b>	<p>Persons living in endemic areas should use personal protective measures that include:</p> <ul style="list-style-type: none"> <li>❑ Avoidance of areas where tick vectors are abundant, especially when they are active (spring to fall);</li> <li>❑ Regular examination of clothing and skin for ticks, and their removal (without crushing them);</li> <li>❑ Use of repellents: these can be used on the skin, e.g. DEET (N,N-diethyl-m-toluamide) and clothing, e.g. permethrin</li> <li>❑ Other measures, such as wearing gloves or other protective clothing to prevent skin contact with infected tissue or blood may be taken by persons who work with livestock or other animals in endemic areas.</li> </ul>
<b>Case Management</b>	<ul style="list-style-type: none"> <li>❑ Patients with suspected or confirmed CCHF should be isolated and cared for using <b>barrier nursing techniques</b>. Isolations precautions to reduce the risk of transmission of CCHF in the health care setting should follow the guidelines developed by WHO/CDC. <b>See:</b> <i>Infection Control for Viral Haemorrhagic Fevers in the African Health Care Setting</i>, available online at: <a href="http://www.who.int/emc-documents/haem_fever/whoemcesr982c.html">http://www.who.int/emc-documents/haem_fever/whoemcesr982c.html</a></li> <li>❑ <b>Universal precautions</b> must be observed when handling specimens of blood or tissues, and when disposing of waste material, needles, and other sharp instruments (see <i>Prevention of HIV/AIDS</i>)</li> <li>❑ The antiviral drug <u>ribavirin</u> has been used in treatment of established CCHF infection with success. Both oral and intravenous formulations are effective. <b>Intravenous ribavirin treatment:</b> The recommended intravenous therapy is: <u>Adults:</u> 1. Loading dose* of 17mg/kg IV (max 1g per dose) 2. Followed by 17mg/kg IV (max 1g per dose) every 6 hours for 4 days 3. Followed by 8mg/kg IV (max 500mg per dose) every 8 hours for 6 days *If there is some delay in beginning the treatment a loading dose of 30mg/kg IV (max 2g) might be necessary <u>Pregnant women:</u> same as for adults. Ribavirin is contraindicated in pregnancy; however, in the context of viral haemorrhagic fevers, the benefit appears likely to outweigh any fetal risk of ribavirin therapy, and ribavirin is therefore recommended. The associated mortality of viral haemorrhagic fevers tends to be higher in pregnancy. <u>Children:</u> same as for adults, dosed according to weight</li> </ul>

	<p><b>Oral ribavirin treatment:</b></p> <p>Intravenous ribavirin therapy requires hospital infrastructure that may not be available in every health care center or in the field, therefore oral therapy can be used where IV therapy is not feasible. During the course of CCHF, patients have nausea, vomiting, gut bleeding, haematemesis and melaena and hence potentially poor uptake of oral ribavirin.</p> <p>The recommended oral therapy is:</p> <p><u>Adults:</u> 1. Loading dose of 2000mg orally once  2. Followed by 1000mg orally every 6 hours for 4 days  3. Followed by 500mg orally every 6 hours for 6 days</p> <p><u>Pregnant women:</u> same as for adults</p> <p><u>Children:</u> 1. Loading dose of 30mg/kg orally once  2. Followed by 15mg/kg every 6 hours for 4 days  3. Followed by 7mg/kg every 6 hours for 6 days</p> <p>☉ <b>Prophylactic administration of oral ribavirin</b> to high risk contacts (direct exposure to body fluids) of CCHF patients is NOT recommended.</p>
<p><b>Epidemic control</b></p>	<ul style="list-style-type: none"> <li>☐ In areas where tick-borne diseases are endemic, treatments are directed to outdoor areas frequented by people and pets. Some of the <b>acaricides</b> which can be used for exterior residual treatments are: <ul style="list-style-type: none"> <li>▪ carbaryl and propoxur at 2 kga.i./ha</li> <li>▪ deltamethrin and lambda-cyhalothrin at 0.003-0.3 kg a.i./ha</li> <li>▪ permethrin at 0.03-0.3 kg a.i./ha and pirimiphos-methyl at 0.1-1 kg a.i./ha</li> </ul> </li> <li>☐ Liquid formulations are best applied using hand-operated compression sprayers, back-pack or vehicle-mounted power sprayers.</li> <li>☐ Exterior residual treatments remain effective for about one month. Care must be taken to avoid contamination of watercourses and adjacent areas, and to prevent hazard to non-target organisms</li> </ul>

## 6. DIARRHOEAL DISEASES (others)

### DESCRIPTION

<b>Infectious agent</b>	<ul style="list-style-type: none"> <li>□ <b>Bacteria:</b> such as <i>Salmonellae</i> (commonly <i>S. enteritidis</i>, <i>S. typhimurium</i>) and <i>Escherichia coli</i>. The bacteria that cause the most severe outbreaks are <i>Shigella dysenteriae</i> type 1 and <i>Vibrio cholerae</i> (see <i>Bacillary dysentery and Cholera</i>)</li> <li>□ <b>Protozoa:</b> such as <i>Entamoeba histolytica</i>, <i>Giardia lamblia</i> and <i>Cryptosporidium parvum</i></li> <li>□ <b>Viruses:</b> such as Rotavirus and Norwalk virus</li> </ul>
<b>Case definition</b>	<p><b>Clinical case definition</b> Three or more abnormally loose or fluid stools over 24 hours</p>
<b>Mode of transmission</b>	Fecal-oral route, particularly contaminated water and food
<b>Incubation</b>	<p><i>Salmonella</i> generally requires an 8-48 hour incubation period, whereas <i>E. coli</i> is typically longer at 2-8 days (median of 3-4 days). Both usually last between 2-5 days</p> <p>The average incubation period is 2-4 weeks for <i>E. histolytica</i>, 7-10 days for <i>G. lamblia</i> and 7 days for <i>C. parvum</i></p> <p>The incubation period for <i>Rotavirus</i> is about 48 hours, and symptoms may last for up to one week</p>
<b>Period of communicability</b>	<p>During the acute stage of the disease and for duration of faecal excretion.</p> <p>Temporary <i>Salmonella</i> carriers can continue to exist for several months</p>

### EPIDEMIOLOGY

<b>Burden</b>	<p>Diarrhoea incidence in under 5 year olds increased from an average 3.8 episodes per child per year in 1990 to nearly 15 episodes per child per year in 1996.</p> <p>The case fatality rate from diarrhoea (all causes) in under 5 year olds reported to the MOH was about 1.7% in the mid-90s. In a health facility survey conducted in 1997, 30% of under 5 year-olds with diarrhoea were dehydrated. In the same survey, three-quarters of diarrhoea cases occurred in under 2 year-olds, with the highest peak in those 6-11 months, and 10% of all cases having persistent diarrhoea, that is, diarrhoea episodes lasting 14 days or longer. Several studies in Iraq in the 90s showed that diarrhoea prevalence was much higher in children aged 6-23 months, who at the same time experienced higher rates of acute malnutrition. Recent data show a decrease in the incidence of diarrhoea cases between 1998 and 2001. However, diarrhoea prevalence in children has remained high: an household survey conducted in 2000 showed that 30% of children under 5 years in northern Iraq had suffered from diarrhoea in the two weeks prior to the survey (i.e. an average of 7.9 episodes per child per year).</p> <p><b>Number of cases of amoebic dysentery and giardiasis reported (incidence rate per 100,000):</b></p> <table border="1"> <thead> <tr> <th></th> <th><b>Amoebic dysentery</b></th> <th><b>Giardiasis</b></th> </tr> </thead> <tbody> <tr><td>2001</td><td>652,314 (2477.4)</td><td>563,642 (2140.7)</td></tr> <tr><td>2000</td><td>643,251 (2568.0)</td><td>542,365 (2165.2)</td></tr> <tr><td>1999</td><td>609,920 (2518.2)</td><td>535,140 (2209.4)</td></tr> <tr><td>1998</td><td>264,290 (1114.9)</td><td>509,050 (2147.4)</td></tr> <tr><td>1997</td><td>329,950 (1466.2)</td><td>605,170 (2689.2)</td></tr> <tr><td>1996</td><td>543,295 (2492.2)</td><td>584,621 (2681.7)</td></tr> <tr><td>1995</td><td>668,064 (3253.1)</td><td>689,113 (3355.6)</td></tr> <tr><td>1994</td><td>76,864 (384.1)</td><td>587,924 (2938.5)</td></tr> <tr><td>1993</td><td>62,864 (315.6)</td><td>602,011 (3022.4)</td></tr> <tr><td>1992</td><td>61,939 (321.0)</td><td>596,356 (3091.5)</td></tr> <tr><td>1991</td><td>58,311 (297.7)</td><td>501,391 (2560.6)</td></tr> <tr><td>1990</td><td>32,957 (174.1)</td><td>113,222 (598.4)</td></tr> <tr><td>1989</td><td>19,615 (107.3)</td><td>73,416 (401.6)</td></tr> </tbody> </table>			<b>Amoebic dysentery</b>	<b>Giardiasis</b>	2001	652,314 (2477.4)	563,642 (2140.7)	2000	643,251 (2568.0)	542,365 (2165.2)	1999	609,920 (2518.2)	535,140 (2209.4)	1998	264,290 (1114.9)	509,050 (2147.4)	1997	329,950 (1466.2)	605,170 (2689.2)	1996	543,295 (2492.2)	584,621 (2681.7)	1995	668,064 (3253.1)	689,113 (3355.6)	1994	76,864 (384.1)	587,924 (2938.5)	1993	62,864 (315.6)	602,011 (3022.4)	1992	61,939 (321.0)	596,356 (3091.5)	1991	58,311 (297.7)	501,391 (2560.6)	1990	32,957 (174.1)	113,222 (598.4)	1989	19,615 (107.3)	73,416 (401.6)
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<b>Geographical distribution</b>	Throughout the country.
<b>Seasonality</b>	Diarrhoea rates are higher in summer than in winter.
<b>Alert threshold</b>	An increase in the number of cases above what is expected compared to previous years
<b>Recent epidemics</b>	No data available, but diarrhoea outbreaks are known to occur in Iraq, especially among children.

### RISK FACTORS FOR INCREASED TRANSMISSION

<b>Population movement</b>	<b>Yes</b>	Spreading of the infectious agent
<b>Overcrowding</b>	<b>Yes</b>	Very important
<b>Poor access to health services</b>	<b>Yes</b>	Early detection and containment of the cases are paramount to reduce transmission.
<b>Food shortages</b>	<b>No</b>	<p>However, malnutrition increases gastrointestinal tract susceptibility to invasiveness of organisms and severity of disease</p> <p>Nearly a half (46%) of the children under 5 with diarrhoea seen at the facilities surveyed in 1997 were malnourished (underweight by age); children less than two years were most at risk (with the exception of those under 6 months possibly due to the protective role of breast-feeding) – especially the 6 to 18 month age group representing 72% of all the cases of diarrhoea with malnutrition. In the same health facility survey, malnutrition was associated with 62% of persistent diarrhoea cases. This has important implications, as malnutrition greatly increases the risk of death for children with persistent diarrhoea.</p>
<b>Lack of safe water and poor sanitation</b>	<b>Yes</b>	<p>The most important risk factors: prevention of diarrhoeal diseases depends on the provision and use of safe water, adequate sanitation and health education. It is estimated that 5 million people are at risk of lack of access to safe water and sanitation in Iraq, and that 500,000 m<sup>3</sup> of raw sewage are dumped every day directly into fresh water bodies without treatment.</p> <p>Access to safe water is dramatic especially in rural areas (41% in mid-2002). The supply of adequate quantities of water should be one of the highest priorities for camp planners. The emergency requirement is 20 litres/person/day.</p> <p>Common sources of infection in emergency situations are:</p> <ul style="list-style-type: none"> <li>• Contaminated water sources (e.g. by faecally-contaminated surface water entering an incompletely sealed well) or water contaminated during storage (e.g. by contact with hands soiled by faeces)</li> <li>• Shared water containers and cooking pots</li> </ul>
<b>Others</b>	<b>Yes</b>	Lack of soap

<b>Risk assessment conclusions</b>	<ul style="list-style-type: none"> <li>❑ Diarrhoea is, with ALRI, the main immediate cause of childhood mortality in Iraq. Together, they are responsible for 70% of childhood deaths.</li> <li>❑ Frequent and repeated diarrhoeal infections are known to occur in Iraq, mainly due to poor water supplies both in terms of quality and quantity; insufficient, poorly maintained sanitation facilities and sanitation services; and overcrowding.</li> <li>❑ In camp situations, diarrhoeal diseases can account for between 25% and 40% of deaths in the acute phase of an emergency. Over 80% of deaths are usually registered among children under 2 years old.</li> </ul>
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## PREVENTION AND CONTROL MEASURES

<b>Case Management</b>	<ul style="list-style-type: none"> <li>• <u>Prevention</u> - using home fluids and Oral Rehydration Salt (ORS) - and <u>treatment of dehydration</u> – with ORS or IV fluids (Ringer lactate) for severely dehydrated patients - is the mainstay of the management of diarrhoeal illness, together with <u>continuing feeding</u> especially in children. Iraq used to produce ORS locally but, after the Gulf crisis, production was stopped and the country had to rely heavily on supply by donors. Home fluids recommended by the national Control of Diarrhoeal Diseases (CDD) programme include home-made soups, rice water, yogurt, food-based fluids, fresh fruit juices and clean water (and breastmilk). ➔ Reduction of mortality due to diarrhoeal disease is primarily related to effective management of dehydration particularly in children.</li> <li>• Use of antibiotics is dependent on the infectious agent and, in children, is recommended only for bacillary dysentery and, in selected cases, cholera.</li> <li>• Resume feeding with a normal diet when vomiting has stopped. Children with persistent diarrhoea should be given an appropriate diet, multivitamins and mineral supplements. Breastfeeding should be continued in all children. Food should be cooked on site.</li> </ul>
<b>Epidemic control</b>	<ul style="list-style-type: none"> <li>• Inform immediately the Health Authorities if an increase in the number of cases above what is expected is identified</li> <li>• Confirm the diagnosis and ensure prompt treatment</li> <li>• Confirm the outbreak following WHO guidelines</li> </ul>
<b>Prevention</b>	<p><b><i>Safe drinking water</i></b></p> <ul style="list-style-type: none"> <li>• Provision of an adequate supply, collection and storage system</li> <li>• Health education on the importance of clean water, also covering system maintenance and household storage</li> </ul> <p><b><i>See Annex 3 : Safe Water and Sanitation</i></b></p> <p><b><i>Safe disposal of human excreta</i></b></p> <ul style="list-style-type: none"> <li>• Provision of an adequate facilities for the disposal of human waste</li> <li>• Health education on the importance of human waste disposal, also covering use and maintenance of the facilities</li> </ul>

<p>□</p>	<p><b>Food safety</b></p> <ul style="list-style-type: none"> <li>• Provision of adequate food storage facilities, cooking utensils, adequate quantity of water and fuel to allow for cooking and reheating</li> <li>• Health education on the importance of food safety and safe food handling</li> </ul>
	<p><b>Washing with soap</b></p> <ul style="list-style-type: none"> <li>• Provision of soap, allowing for hand washing, bathing and laundry</li> <li>• Health education on the relationship between diseases spread and lack of or poor hand washing. Demonstration on the importance of good hand washing</li> </ul>
	<p><b>Breastfeeding</b></p> <ul style="list-style-type: none"> <li>• Provision of information on the protective qualities of breast-feeding, and the importance of breast feeding ill children</li> <li>• Practical support for breast feeding ill children</li> </ul>

## 7. DIPHTHERIA

### DESCRIPTION

<b>Infectious agent</b>	Bacterium: <i>Corynebacterium diphtheriae</i>
<b>Case definition and classification</b>	<p><b>Clinical description:</b> Upper respiratory tract illness with laryngitis or pharyngitis or tonsillitis plus adherent membranes of tonsils or nasopharynx.</p> <p><b>Laboratory confirmation:</b> isolation of <i>C. diphtheriae</i> from a clinical specimen</p> <p><b>Case classification:</b>  <b>Suspected case:</b> not applicable.  <b>Probable case:</b> a case that meets the clinical description  <b>Confirmed case:</b> probable case confirmed by laboratory or epidemiologically linked to a laboratory-confirmed case.  <b>Carrier:</b> presence of <i>C. diphtheriae</i> in nasopharynx, no symptoms.</p> <p>NOTE: persons with positive <i>C. diphtheriae</i> identification but who do not meet the clinical description (e.g. asymptomatic carriers) must not be reported as probable or confirmed cases</p>
<b>Mode of transmission</b>	<ul style="list-style-type: none"> <li>Contact (usually direct, rarely indirect) with the respiratory droplets of a case or carrier</li> <li>In rare cases, the disease may be transmitted through foodstuffs (raw milk has served as a vehicle)</li> </ul>
<b>Incubation</b>	Usually 2-5 days, occasionally longer
<b>Period of communicability</b>	Until virulent bacilli have disappeared from discharges and lesions: usually 2 weeks or less and seldom more than 4 weeks. The rare chronic carrier can shed bacilli for 6 months or more. The disease is usually not contagious 48 hours after antibiotics are instituted.

### EPIDEMIOLOGY

<b>Burden</b>	<p><b>Number of cases reported (incidence rate per 100,000):</b></p> <table> <tr> <td><b>2001:</b> 32 cases (0.12)</td> <td><b>1994:</b> 132 cases (0.66)</td> </tr> <tr> <td><b>2000:</b> 34 cases (0.14)</td> <td><b>1993:</b> 239 cases (1.20)</td> </tr> <tr> <td><b>1999:</b> 142 cases (0.59)</td> <td><b>1992:</b> 369 cases (1.91)</td> </tr> <tr> <td><b>1998:</b> 160 cases (0.67)</td> <td><b>1991:</b> 511 cases (2.61)</td> </tr> <tr> <td><b>1997:</b> 290 cases (1.29)</td> <td><b>1990:</b> 168 cases (0.89)</td> </tr> <tr> <td><b>1996:</b> 258 cases (1.18)</td> <td><b>1989:</b> 96 cases (0.53)</td> </tr> <tr> <td><b>1995:</b> 119 cases (0.58)</td> <td></td> </tr> </table>	<b>2001:</b> 32 cases (0.12)	<b>1994:</b> 132 cases (0.66)	<b>2000:</b> 34 cases (0.14)	<b>1993:</b> 239 cases (1.20)	<b>1999:</b> 142 cases (0.59)	<b>1992:</b> 369 cases (1.91)	<b>1998:</b> 160 cases (0.67)	<b>1991:</b> 511 cases (2.61)	<b>1997:</b> 290 cases (1.29)	<b>1990:</b> 168 cases (0.89)	<b>1996:</b> 258 cases (1.18)	<b>1989:</b> 96 cases (0.53)	<b>1995:</b> 119 cases (0.58)	
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<b>Geographical distribution</b>	Throughout the country														
<b>Seasonality</b>	Throughout the year; higher incidence in cold months														
<b>Alert threshold</b>	One suspected, probable or confirmed case must be investigated.														
<b>Recent epidemics</b>	The number of reported cases increased noticeably during the years immediately following the early 90s crisis														

## RISK FACTORS FOR INCREASED TRANSMISSION

<b>Population movement</b>	<b>Yes</b>	Importation
<b>Overcrowding</b>	<b>Yes</b>	Crowded conditions facilitate transmission
<b>Poor access to health services</b>	<b>Yes</b>	<ul style="list-style-type: none"> <li>• No access to routine immunization services</li> <li>• Early detection and containment of the cases are paramount to reduce transmission</li> </ul>
<b>Food shortages</b>	<b>No</b>	
<b>Lack of safe water and poor sanitation</b>	<b>No</b>	
<b>Others</b>	<b>No</b>	
<b>Risk assessment conclusions</b>		<p>Outbreaks can occur when social or natural conditions lead to overcrowding of susceptible groups, especially infants and children. This frequently occurs when there are large-scale movements of non-immunized populations.</p> <p><b><u>DTP3 coverage:</u></b></p> <p><b>2002:</b> 67% (est.)  <b>2001:</b> 74% (official country est.); 81% (WHO-UNICEF est.)  <b>2000:</b> 86% (official country est.)  <b>1999:</b> 90% (official country est.); 81% (WHO-UNICEF survey database)  <b>1998:</b> 86% (official country est.)  <b>1990:</b> 83% (official country est.)  <b>1980:</b> 13% (official country est.)</p>

## PREVENTION AND CONTROL MEASURES

<b>Introduction</b>	<p>The control of diphtheria is based on 3 measures:</p> <ol style="list-style-type: none"> <li>1. Ensuring high population immunity through vaccination (primary prevention).</li> <li>2. Rapid investigation and treatment of contacts (secondary prevention of spread).</li> <li>3. Early diagnosis and proper case management (tertiary prevention of complications and deaths).</li> </ol>
<b>Immunization</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> 3 doses of 0.5 ml DTP intramuscularly in outer part of thigh, according to national schedule (see <i>Annex 7</i>)</li> <li><input type="checkbox"/> If immunization is started later, there must still be an interval of 4 weeks between doses</li> <li><input type="checkbox"/> Immunization to be completed preferably before the age of 6 months (26 weeks)</li> <li><input type="checkbox"/> DTP vaccine must be stored between +2°C and +8°C</li> <li><input type="checkbox"/> DTP vaccine can be given to immunocompromised children up to 7 years old; Td can be given to immunocompromised adults</li> </ul>

<p><b>Case Management</b></p>	<p>Diphtheria antitoxin and antibiotic therapy are the cornerstone of therapy for diphtheria.</p> <ul style="list-style-type: none"> <li>□ The antibodies only neutralize toxin before its entry into cells, and is therefore critical that diphtheria antitoxin be administered as soon as a presumptive diagnosis has been made.</li> <li>□ Antibiotic therapy, by killing the organism, has three benefits: <ul style="list-style-type: none"> <li>• The termination of toxin production</li> <li>• Amelioration of the local infection</li> <li>• Prevention of spread of the organism to uninfected persons</li> </ul> </li> </ul> <p><b><i>Do not wait for laboratory results before starting treatment / control activities</i></b></p> <p><b><u>Patients</u></b></p> <ul style="list-style-type: none"> <li>• Diphtheria antitoxin i.m. (20,000 to 100,000 units) in a single dose, immediately after throat swabs have been taken.</li> </ul> <p><b>Plus</b></p> <ul style="list-style-type: none"> <li>• Procaine penicillin G i.m. (25,000 to 50,000 units/kg/day for children; 1.2 million units/day for adults in 2 divided doses) <b>or</b> parenteral erythromycin (40-50 mg/kg/day with a maximum of 2 g/day) until the patient can swallow; <b>then</b></li> <li>• Oral penicillin V (125-250 mg) in 4 doses a day, <b>or</b> oral erythromycin (40-50 mg/kg/day with a maximum of 2 g/day) in 4 divided doses.</li> </ul> <p><i>Antibiotic treatment should be continued for a total period of 14 days.</i></p> <ul style="list-style-type: none"> <li>• Isolation: strict (pharyngeal diphtheria) or contact (cutaneous diphtheria) for 14 days.</li> </ul> <p><i>Note: Clinical diphtheria does not necessarily confer natural immunity, and patients should therefore be vaccinated before discharge from a health facility</i></p> <p><b><u>Close Contacts</u>*</b></p> <ul style="list-style-type: none"> <li>• Surveillance for 7 days for all persons with close contact, regardless of vaccination status, and throat culture</li> <li>• All must receive a single dose of benzathine penicillin G i.m. (600,000 units for children &lt; 6; 1.2 million units for 6 or older). If culture is positive, give antibiotics as for patients above</li> </ul> <p><b><u>Carriers</u></b></p> <p>All must receive a single dose of benzathine penicillin G i.m. (600,000 units for children &lt; 6; 1.2 million units for 6 or older).</p>
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\* Close contacts include household members and other persons with a history of direct contact with a case, as well as health care staff exposed to oral or respiratory secretions of a case

<b>Epidemic control</b>	<ul style="list-style-type: none"><li>- Inform the Health Authorities if one or more suspected cases are identified</li><li>- Confirm the suspected outbreak, following WHO guidelines</li><li>- Investigate any probable case: check if it fulfils the case definition, record date of onset, age and vaccination status</li><li>- Confirm the diagnosis: collect both nasal and pharyngeal swabs for culture and swabs from any wounds or skin lesions. If appropriate facilities are available, determine the biotype and toxigenicity of <i>C. diphtheriae</i></li><li>- Identify close contacts* and define population groups at high risk. Adult contacts must avoid contact with children and must not be allowed to undertake food handling until proven not to be carriers</li><li>- Implement outbreak response measures. Give priority to case management and immunization of population in areas not yet affected where the outbreak is likely to spread</li><li>- Immunize the population at risk as soon as possible, especially children. In an epidemic involving adults, immunize groups that are most affected and at highest risk. Repeat immunization procedures 1 month later to provide at least 2 doses to recipients</li><li>- In epidemic situations, preferably Td vaccine (a combination of diphtheria and tetanus toxoids with reduced diphtheria content ) should be given</li><li>- To ensure safety of injection during immunization, auto-disable syringes and safety boxes are recommended. Safe disposal of used sharps should be ensured</li></ul>
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## 8. HIV/AIDS

### DESCRIPTION

<b>Infectious agent</b>	Human Immunodeficiency Virus (HIV). Two types have been identified: HIV-1 and HIV-2, with similar epidemiological characteristics. HIV-2 is less pathogenic than HIV-1.
<b>Case definition and classification</b>	<p><b>AIDS case definition</b> Acquired Immunodeficiency Syndrome (AIDS) is the late clinical stage of HIV infection, defined as an illness characterised by one or more indicator diseases.</p> <p><b>WHO Staging System for HIV Infection and Disease in Adults and Adolescents</b></p> <p><u>Stage 1</u></p> <ol style="list-style-type: none"> <li>1. Asymptomatic</li> <li>2. Persistent generalized lymphadenopathy (PGL)</li> </ol> <p>Performance Scale 1: <i>asymptomatic, normal activity</i></p> <p><u>Stage 2</u></p> <ol style="list-style-type: none"> <li>3. Weight loss, &lt;10% of body weight</li> <li>4. Minor mucocutaneous manifestations (seborrheic dermatitis, prurigo, fungal nail infections, recurrent oral ulcerations, angular cheilitis)</li> <li>5. Herpes zoster within the last 5 years</li> <li>6. Recurrent upper respiratory tract infections (e.g. bacterial sinusitis)</li> </ol> <p>And/or Performance Scale 2: <i>symptomatic, normal activity</i></p> <p><u>Stage 3</u></p> <ol style="list-style-type: none"> <li>7. Weight loss, &gt;10% of body weight</li> <li>8. Unexplained chronic diarrhoea, &gt;1 month</li> <li>9. Unexplained prolonged fever (intermittent or constant), &gt;1 month</li> <li>10. Oral candidiasis (thrush)</li> <li>11. Oral hairy leukoplakia</li> <li>12. Pulmonary tuberculosis within the past year</li> <li>13. Severe bacterial infections (i.e. pneumonia, pyomyositis)</li> </ol> <p>And/or Performance Scale 3: <i>bedridden, &lt;50% of the day during the last month</i></p> <p><u>Stage 4</u></p> <ol style="list-style-type: none"> <li>14. HIV wasting syndrome, as defined by the Centers for Disease Control and Prevention (CDC)<sup>a</sup></li> <li>15. <i>Pneumocystis carinii</i> pneumonia</li> <li>16. Toxoplasmosis of the brain</li> <li>17. Cryptosporidiosis with diarrhoea &gt;1 month</li> <li>18. Cryptococcosis, extrapulmonary</li> <li>19. Cytomegalovirus (CMV) disease of an organ other than liver, spleen or lymph nodes</li> <li>20. Herpes simplex virus (HSV) infection, mucocutaneous &gt;1 month, or visceral any duration</li> <li>21. Progressive multifocal leucoencephalopathy (PML)</li> <li>22. Any disseminated endemic mycosis (e.g. histoplasmosis, coccidiomycosis)</li> <li>23. Candidiasis of the oesophagus, trachea, bronchi or lungs</li> <li>24. Atypical mycobacteriosis, disseminated</li> <li>25. Non-typhoid Salmonella septicaemia</li> <li>26. Extrapulmonary tuberculosis</li> <li>27. Lymphoma</li> <li>28. Kaposi's sarcoma</li> <li>29. HIV encephalopathy, as defined by the Centers for Disease Control and Prevention (CDC)<sup>b</sup></li> </ol> <p>And/or Performance Scale 4: <i>bedridden, &gt;50% of the day during the last month.</i></p>

	<p><i>Note: both definitive and presumptive diagnoses are acceptable</i></p> <p>(a) <b>HIV wasting syndrome:</b> weight loss of &gt;10% of body weight, <b>plus either</b> unexplained chronic diarrhoea (&gt;1 month), <b>or</b> chronic weakness and unexplained prolonged fever (&gt;1 month).</p> <p>(b) <b>HIV encephalopathy:</b> clinical finding of disabling cognitive and/or motor dysfunction interfering with activities of daily living, progressing over weeks to month, in the absence of a concurrent illness or condition other than HIV infection that could explain the findings.</p>
	<p><b>Expanded WHO case definition for AIDS surveillance*</b></p> <p>An adult or adolescent ( &gt;12 years of age) is considered to have AIDS if a test for HIV antibody gives a positive result, and one or more of the following conditions are present:</p> <ul style="list-style-type: none"> <li>• &gt;10% body weight loss or cachexia, with diarrhoea or fever, or both, intermittent or constant, for at least 1 month, not known to be due to a condition unrelated to HIV</li> <li>• Cryptococcal meningitis</li> <li>• Pulmonary or extrapulmonary tuberculosis</li> <li>• Kaposi's sarcoma</li> <li>• Neurological impairment that is sufficient to prevent independent daily activities, not known to be due to a condition unrelated to HIV infection (e.g. trauma or cerebrovascular accident)</li> <li>• Candidiasis of the oesophagus (which may be presumptively diagnosed based on the presence of oral candidiasis accompanied by dysphagia)</li> <li>• Clinically diagnosed life threatening or recurrent episodes of pneumonia, with or without aetiological confirmation</li> <li>• Invasive cervical cancer</li> </ul> <p>* WHO. <i>Weekly Epidemiological Record</i>. 1994. 69:273-275.</p>
	<p><b>Laboratory evidence of HIV</b></p> <ul style="list-style-type: none"> <li>• This is most commonly done by detecting HIV antibody in serum samples using enzyme-linked immunoassay (ELISA or EIA). When this test is positive, it must be confirmed with another test of higher specificity such as the Western blot, the indirect fluorescent antibody (IFA) test or a second ELISA test that is methodologically and/or antigenically independent</li> <li>• The rapid tests, which are recommended by WHO, have been evaluated at WHO collaborating centres and have levels of sensitivity and specificity comparable to WHO recommended ELISA tests. The use of rapid HIV tests may afford several advantages in emergency and disaster settings including : <ul style="list-style-type: none"> <li>- Rapid tests that do not require refrigeration will be more suitable for remote and rural areas and sites without a guaranteed electricity supply. Long shelf life is also important especially for remote areas and sites performing smaller numbers of tests</li> <li>- Many rapid tests require no laboratory equipment and can be performed in settings where electrical and water supplies need not be guaranteed</li> <li>- Rapid tests can detect HIV antibodies in whole blood (finger prick samples) as well as serum/plasma and testing therefore may be performed by non-laboratory personnel with adequate training and supervision.</li> </ul> </li> </ul>
<p><b>Mode of transmission</b></p>	<ul style="list-style-type: none"> <li>• Sexual intercourse (vaginal or anal) with an infected partner, especially in presence of a concurrent ulcerative or non-ulcerative Sexually Transmitted Infection (STI); or</li> <li>• Contaminated needles, syringes, other injecting equipment and injecting solutions (contamination often occurs when drug solutions are mixed or when multiple users draw up solutions from a single container); or</li> <li>• Transfusion of infected blood or blood products; or</li> <li>• Infected mother to her child during pregnancy, labour and delivery or through breastfeeding</li> </ul>

<b>Incubation</b>	Variable. On average, time from HIV infection to clinical AIDS is 8 to 10 years, though AIDS may be manifested in less than 2 years or be delayed in onset beyond 10 years  Incubation times are shortened in resource poor settings and in older patients. They can be prolonged by provision of primary prophylaxis for opportunistic infections or antiretroviral treatment
<b>Period of communicability</b>	Any person who is infected with HIV may pass the infection to another through the routes of transmission described above.  Infectiousness is observed to be high during the initial period after infection. Studies suggest it increases further with increasing immune deficiency, clinical symptoms and presence of other STIs

## EPIDEMIOLOGY

<b>Burden</b>	<p><b>Estimated number of adults and children living with HIV/AIDS, end of 2001:</b> (including all people with HIV infection, whether or not they have developed symptoms of AIDS)</p> <p><b>Adults and children:</b> &lt;1000  <b>Adults (15-49):</b> &lt;1000 (&lt;0.1% of all adults)  <b>Women (15-49):</b> 150</p> <p><b>Estimated number of adults and children who died of AIDS in 1999: 18</b></p> <p><b>Number of new AIDS cases reported:</b>  <b>2001:</b> 4 (Mode of Transmission: blood and blood products)  <b>2000:</b> 6 (Mode of Transmission: 5 injecting drug use; 1 blood and blood products)  <b>1999:</b> 0  <b>1998:</b> 4 (Mode of Transmission: blood and blood products)  <b>1997:</b> 2 (Mode of Transmission: blood and blood products)</p>
<b>Geographical distribution</b>	Throughout the country
<b>Seasonality</b>	No seasonal variation
<b>Alert threshold</b>	One suspected case must be investigated
<b>Recent epidemics</b>	Earliest AIDS cases have been reported from Iraq in 1991 (7 cases). A slight increase in the number of cases has been reported in the following years: 6 cases in 1992; 21 cases in 1993. The peak was recorded in 1994 with 37 cases. After this, reported cases have gradually decreased (16 cases in 1995; 15 cases in 1996; 2 cases in 1997; 4 cases in 1998). No cases reported in 1999. 6 cases in 2000, 4 in 2001.

## RISK FACTORS FOR INCREASED TRANSMISSION

<b>Population movement</b>	<b>Yes</b>	<p>In emergency situations, population movement can:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Cause breakdown in family and social ties</li> <li><input type="checkbox"/> Erode traditional values and coping strategies. This can result in higher risk sexual behaviour which increases risk of HIV spread.</li> <li><input type="checkbox"/> Influence illicit drug trafficking and drug use, increasing risk of HIV transmission through injecting drug use.</li> </ul>
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<b>Overcrowding</b>	<b>Yes</b>	Groups with differing levels of HIV awareness, and differing rates of infection, are often placed together in temporary locations, such as refugee camps, where there is greater potential for sexual contact. Overcrowding can also influence injecting drug use patterns and result in increased risk of sharing contaminated injecting equipment (this has been noted in refugee camps).
<b>Poor access to health services</b>	<b>Yes</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Without adequate medical services STIs - if left untreated in either partner - greatly increase the risk of acquiring HIV</li> <li><input type="checkbox"/> Important materials for HIV prevention, particularly condoms, are likely to be lacking in an emergency situation</li> <li><input type="checkbox"/> In emergency situations services for drug dependence treatment usually do not exist. It is more likely to be difficult to access sterile injecting equipment.</li> </ul>
<b>Food shortages</b>	<b>Yes</b>	The need for food is paramount in emergency situations, and exchanging sex for money to buy food and other essentials can occur (see <b>Sex work</b> )
<b>Lack of safe water and poor sanitation</b>	<b>No</b>	
<b>Others</b>	<b>Yes</b>	<p><b>Sexual violence</b></p> <ul style="list-style-type: none"> <li>• Refugees and IDPs are often physically and socially powerless, with women and children at particular risk of sexual coercion, abuse or rape.</li> <li>• Sexual violence carries a higher risk of infection because the person violated cannot protect herself or himself from unsafe sex, and because the virus can be transmitted more easily if bodily tissues are torn during violent sex.</li> </ul> <p><b>Sex work</b></p> <ul style="list-style-type: none"> <li>• Exchange of sexual favours for basic needs, such as money, shelter, security, etc, is common in or around refugee camps, and inevitably involves both the refugee and host communities. Both sex workers and clients are at risk of HIV infection if unprotected sex is practised</li> </ul> <p><b>Injecting drug use</b></p> <ul style="list-style-type: none"> <li>• In the typical conditions of an emergency, it is highly likely that the drug injectors will be sharing needles, a practice that carries a very high risk of HIV transmission if one of the people sharing is infected. Injecting drug use drives the epidemic in the neighbouring Islamic Republic of Iran, where many Iraqi refugees live: in 2001, 64% of all Iranian AIDS cases were injecting drug users.</li> </ul> <p><b>Unsafe blood transfusions</b></p> <ul style="list-style-type: none"> <li>• Transfusion with HIV infected blood is a highly efficient means of transmitting the virus. In emergency situations, when regular transfusion services have broken down, it is particularly difficult to ensure blood safety</li> </ul> <p><b>Adolescent Health</b></p> <ul style="list-style-type: none"> <li>• Children in refugee settings may have little to occupy themselves which may lead them to experiment with sex earlier than children in other situations</li> </ul> <p><b>The following are considered “risk groups” in Iraq:</b></p> <ul style="list-style-type: none"> <li>• STD patients</li> <li>• Haemophilic, thalassaemic, tissue transplanted patients</li> <li>• Truck drivers (thousand of trucks cross the Iraqi borders monthly)</li> <li>• Injecting drug users</li> <li>• Individuals with multiple sexual partners</li> </ul>

**Risk assessment conclusions**

Earliest AIDS cases were reported from Iraq in 1991: by end of 2001, a cumulative number of 124 AIDS and 222 HIV infections were reported to the health authorities in the country, the majority of which had occurred among young men with hemophilia through infected blood products. Cryoprecipitates are now considered safe and are produced locally or re-tested if imported.

The system of reporting and screening of HIV is tightly monitored by the health authorities. Gypsies, who are involved in the entertainment business, are also considered to be at potential risk and are tested. Other groups who are tested include STD patients, prostitutes caught by the authorities, night club workers, blood recipients, prisoners, patients with TB. Hepatitis B and C, sexual contacts of AIDS patients, blood donors, pregnant women, health workers and couples before marriage. In the year 2000, more than half a million HIV tests were performed and 18 out of the 20 detected HIV positive cases were among travellers, and two were sexual contacts of known HIV cases. No evidence of infection was found among pregnant women tested between 1993 and 2000. One positive HIV was detected among 1272 prostitutes who were tested in 1996. Because of the extensive testing activities, one could conclude that Iraq is still at very low HIV epidemic level.

Between 1993 and 1999, there was no evidence of HIV infection found among STD clinics patients tested. More than 30,000 STD cases were reported in 2000, of which 18% were attributed to gonorrhoea, 13% to Pelvic Inflammatory Diseases, and around 9% each of bacterial vaginosis, non-gonococcal urethritis and trichomoniasis. Syphilis serology by VDRL among pregnant women showed a positive rate of 0.1% in year 2000. The health authorities believe that these figures are largely underestimated considering the current embargo situation of the country, the limited development of the health facilities and their ability to cope with STD care and prevention. It is believed that the sexual risk factors are not uncommon since the age at marriage has increased. Also, poor slums and industrialized areas are fertile grounds for risky behaviours.

**The WHO Regional Office for Eastern Mediterranean plans to concentrate efforts on scaling up activities in the following areas during 2002-2003:**

- HIV/AIDS/STD epidemiological surveillance
- Developing essential packages of health services to provide HIV/AIDS comprehensive care, including voluntary counselling and testing, prevention of mother-to-child transmission, infection control (especially on safe injection and blood safety, STD syndromic case-management, access to HIV care and antiretroviral therapy, drug abuse and HIV).
- Operational research in support of scaling up the health sector response to HIV/AIDS/STD
- Negotiation for cost reduction of antiretroviral therapy
- Sustained public information and advocacy activities about HIV/AIDS/STD
- Support to national strategic planning

All stakeholders involved in humanitarian activities must be sensitized to the importance of addressing HIV in tandem with all other activities. Activities should include HIV prevention (promotion of safer sexual behaviors, treatment of Sexually Transmitted Infections, blood safety) and care and support for people living with HIV/AIDS. They must reach vulnerable populations and address the needs of women and children.

All stakeholders must also be sensitized about HIV risks associated with injecting drug users and the need for drug dependence treatment and risk reduction education and counselling.

## PREVENTION AND CONTROL MEASURES

<b>Case Management</b>	<ul style="list-style-type: none"> <li>❑ Provide high quality care and support to all people living with HIV/AIDS (PLHA) that includes counselling, psychosocial support, treatment for opportunistic infections (e.g. TB), palliative care and access to antiretroviral therapy where feasible</li> <li>❑ Support PLHA to live normal and productive lives that are free of stigmatization and discrimination</li> </ul>
<b>Prevention</b>	<p><b><i>Reduce sexual and mother-to-child transmission</i></b></p> <ul style="list-style-type: none"> <li>❑ <i>Awareness and life skills education</i>, especially youth, ensuring that all people are well informed of what does, and does not, constitute a mode of transmission; of how and where to acquire free condoms and medical attention if necessary; and information on basic hygiene.</li> <li>❑ <i>Condom promotion</i> which would ensure that good-quality condoms are freely available to those who need them, using culturally sensitive instructions and distribution. This issue may however not be easily applicable to the Iraqi context.</li> <li>❑ <i>STI control</i>, including for sex workers, using the syndromic STI management approach, with partner notification and promotion of safer sex</li> <li>❑ <i>Reduce mother-to-child transmission of HIV by :</i> <ul style="list-style-type: none"> <li>• the primary prevention of HIV among women, especially young women</li> <li>• avoiding unintended pregnancies among HIV infected women and promoting family planning methods, particularly in women who are infected with HIV</li> <li>• preventing the transmission of HIV from infected pregnant women to their infants by:           <ul style="list-style-type: none"> <li>▪ using an antiretroviral prophylaxis regimen;</li> <li>▪ avoiding unnecessary obstetrical invasive procedures, such as artificial rupture of membranes or episiotomy; and</li> <li>▪ modifying infant feeding practices (replacement feeding given with a cup when acceptable, feasible, affordable, sustainable and safe. Otherwise exclusive breastfeeding for the first months of life is recommended)</li> </ul> </li> </ul> </li> </ul> <p><b><i>Blood safety</i></b></p> <ul style="list-style-type: none"> <li>❑ HIV testing of all transfused blood</li> <li>❑ Avoid non-essential blood transfusion</li> <li>❑ Recruitment of safe blood donor pool</li> </ul> <p><b><i>Prevention among injecting drug users</i></b></p> <ul style="list-style-type: none"> <li>❑ Ready access to sterile needles, syringes and other injecting equipment (and disposal of used equipment)</li> <li>❑ HIV risk reduction education and counselling for injecting drug users (including peer outreach when possible)</li> <li>❑ Drug dependence treatment services, including substitution treatment (e.g. methadone) where possible</li> <li>❑ Access to STI and HIV/AIDS treatment for injecting drug users</li> </ul> <p><b><i>Universal precautions</i></b></p> <ul style="list-style-type: none"> <li>❑ Washing hands thoroughly with soap and water, especially after contact with body fluids or wounds</li> <li>❑ Using protective gloves and clothing when there is risk of contact with blood or other potentially infected body fluids</li> <li>❑ Safe handling and disposing of waste material, needles, and other sharp instruments. Properly cleaning and disinfecting medical instruments between patients</li> </ul>

	<p><b><i>Physical protection</i></b></p> <ul style="list-style-type: none"> <li>❑ The protection of the most vulnerable, especially women and children, from violence and abuse is not only an important principle of human rights but is also essential for reducing the risk of HIV infection</li> </ul>
<b>Protecting health care workers</b>	<ul style="list-style-type: none"> <li>❑ In order to reduce nosocomial transmission, health workers should strictly adhere to Universal Precautions with all patients and laboratory samples - whether or not known to be infected with HIV.</li> <li>❑ Health care workers should have access to voluntary counselling, testing and care. Often health workers deployed in complex emergencies experience significant occupational stress and those tested, as part of the management of occupational exposures, will require additional support.</li> </ul>
<b>Counselling and voluntary testing programmes</b>	<ul style="list-style-type: none"> <li>❑ The establishment of voluntary testing and counselling services to help individuals make informed decisions on HIV testing should be considered when relative stability is restored. Often refugees are coerced into testing, or are required to make decision with regard to testing when they are suffering acute or post traumatic stress disorders</li> <li>❑ As refugees are often tested prior to resettlement in other countries, it is critical that they receive counselling on the legal and social implications of the test. Often migration or temporary residency status is contingent on the applicant having HIV antibody seronegative status</li> <li>❑ Post-test counselling is essential for both seronegative and seropositive results. Refugees and conflict survivors who are already traumatized will require additional psychosocial support if they test seropositive. Typically the support networks of displaced persons are disrupted and suicide risk assessment forms an important part of post-test counselling in a refugee or conflict context.</li> <li>❑ Testing of orphaned minors should be done with the consent of their official guardians only where there is an immediate health concern or benefit to the child. There should be no mandatory screening prior to admittance to substitute care</li> </ul>
<b>Immunization</b>	<ul style="list-style-type: none"> <li>❑ Asymptomatic HIV-infected children should be immunized with the EPI vaccines.</li> <li>❑ Symptomatic HIV-infected children should NOT receive BCG .</li> </ul>

## 9. LEISHMANIASIS (CUTANEOUS)

### DESCRIPTION

<b>Infectious agent</b>	Protozoan, belonging to the genus <i>Leishmania</i> . Two species are present in Iraq: <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>L. tropica</i>, agent of anthroponotic cutaneous leishmaniasis (ACL)</li> <li><input type="checkbox"/> <i>L. major</i>, agent of zoonotic cutaneous leishmaniasis (ZCL)</li> </ul>
<b>Case definition</b>	<p><b>Clinical description</b> Appearance of one or more skin lesions, typically on uncovered parts of the body. The face, neck, arms and legs are the most common sites. A nodule may appear at the site of inoculation and may enlarge to become an indolent ulcer. The sore may remain in this stage for a variable time before healing - it typically leaves a depressed scar. Other atypical forms may occur.</p> <p><b>Laboratory criteria</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Positive parasitology (stained smear or culture from the lesion)</li> </ul> <p><b>WHO operational definitions:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> A case of cutaneous leishmaniasis can be defined as a person showing clinical signs with parasitological confirmation of the diagnosis (positive smear or culture).</li> </ul>
<b>Mode of transmission</b>	<p>From the reservoir host through the bite of infective female phlebotomines (sand flies).</p> <p>In ACL, humans are the sole proven reservoir and transmission occurs from person to person through the vector (probably <i>P. sergenti</i>). Untreated persons are the main source of infection from the vector.</p> <p>In ZCL, gerbils seem to be the main animal reservoir and <i>P. papatasi</i> is the probable vector.</p>
<b>Incubation</b>	At least a week, up to many months. ACL usually has a longer incubation than ZCL.
<b>Period of communicability</b>	An infected subject is susceptible to transmit the parasite as long as it remains in lesions; in untreated cases, usually a few months to 2 years.

### EPIDEMIOLOGY

<b>Burden</b>	<p><b>Number of cases reported (incidence rate per 100,000):</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><b>2001:</b> 625 cases (2.3)</td> <td style="width: 50%;"><b>1994:</b> 6,662 cases (33.3)</td> </tr> <tr> <td><b>2000:</b> 955 cases (3.8)</td> <td><b>1993:</b> 7,378 cases (37.0)</td> </tr> <tr> <td><b>1999:</b> 1,261 cases (5.2)</td> <td><b>1992:</b> 8,779 cases (45.5)</td> </tr> <tr> <td><b>1998:</b> 2,985 cases (12.5)</td> <td><b>1991:</b> 8,233 cases (42.0)</td> </tr> <tr> <td><b>1997:</b> 2,939 cases (13.0)</td> <td><b>1990:</b> 1,894 cases (10.0)</td> </tr> <tr> <td><b>1996:</b> 7,606 cases (34.8)</td> <td><b>1989:</b> 1,829 cases (10.0)</td> </tr> <tr> <td><b>1995:</b> 7,703 cases (37.5)</td> <td></td> </tr> </table> <p>NB: almost all are ZCL cases.</p>	<b>2001:</b> 625 cases (2.3)	<b>1994:</b> 6,662 cases (33.3)	<b>2000:</b> 955 cases (3.8)	<b>1993:</b> 7,378 cases (37.0)	<b>1999:</b> 1,261 cases (5.2)	<b>1992:</b> 8,779 cases (45.5)	<b>1998:</b> 2,985 cases (12.5)	<b>1991:</b> 8,233 cases (42.0)	<b>1997:</b> 2,939 cases (13.0)	<b>1990:</b> 1,894 cases (10.0)	<b>1996:</b> 7,606 cases (34.8)	<b>1989:</b> 1,829 cases (10.0)	<b>1995:</b> 7,703 cases (37.5)	
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<b>Geographical distribution</b>	<p>Both ACL and ZCL occur in Iraq.</p> <p>ACL is mainly suburban. The historical focus was located in greater Baghdad area. Today, the main focus is located in the poor suburbs of Mosul, where poor sanitary conditions provide ideal conditions for sandflies to breed and lay eggs, and where high population density increases exposures to the vector.</p> <p>ZCL is present in rural areas throughout the country, but mostly in the northern and western governorates.</p>														

<b>Seasonality</b>	Transmission of both ACL and ZCL occurs from May to October, after the hatching season.
<b>Recent epidemics</b>	No data available

### RISK FACTORS FOR INCREASED TRANSMISSION

<b>Population movement</b>	<b>Yes</b>	<p>Movements of population bring non-immune people to endemic areas and infected people to non-endemic areas where the vector is widespread. Both internal migration (displaced people) or movements of refugees (repatriation programme) can contribute to the propagation of an epidemic of cutaneous leishmaniasis.</p> <p>Possible reasons of population movement:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Military operations: massive population movements following the Iran/Iraq war (1980-88) exposed many people to ZCL infection.</li> <li><input type="checkbox"/> Development of new agro-industrial projects (irrigation schemes)</li> <li><input type="checkbox"/> Fast-growing or unplanned urbanization</li> </ul>
<b>Overcrowding</b>	<b>Yes</b>	<p>In anthroponotic foci, the risk of transmission can be increased by population crowding.</p> <p>In zoonotic foci, overcrowding can increase the risk of contact with animal reservoir.</p>
<b>Poor access to health services</b>	<b>Yes</b>	In anthroponotic foci, systematical case-detection and rapid treatment of cases decrease the risk of transmission. Untreated patients are the main source of infection for the vector.
<b>Food shortages</b>	<b>No</b>	However, malnourished people are more susceptible to the infection due to a weakened immune response. Many of the patients seeking treatment are also malnourished.
<b>Lack of safe water and poor sanitation</b>	<b>Yes</b>	Open sewage systems and lack of garbage or rubble collection favour the proliferation of breeding sites for vector.
<b>Others</b>	<b>Yes</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Man-made environmental changes (building of dams, irrigation systems, wells, deforestation) can increase exposure to sandfly vectors.</li> <li><input type="checkbox"/> Discontinuation of anti-malaria control programmes has played a major role in the upsurge of sandfly density and risk of infection in Iraq: the decline in CL prevalence in the mid-1950s was due to the impact of the anti-malaria DDT house spraying on sandflies, while the increase observed in the mid-1960s followed the discontinuation or decline of this operation.</li> </ul>
<b>Risk assessment conclusions</b>		<p>ACL has been known in Baghdad since ancient times (Baghdad boil). Nowadays ACL has become rarer, and cases occur sporadically.</p> <p>ZCL is the dominant form of CL in Iraq. Outbreaks in northern and western governorates seem to be linked to population explosions of gerbils (<i>Meriones crassus</i> and <i>Meriones libicus</i>) following the massive increase (5 fold of the cultivated surface before the imposition of sanctions) in wheat crops.</p>

## PREVENTION AND CONTROL MEASURES

<p><b>Case Management</b></p>	<p>Cutaneous leishmaniasis is a self-limiting disease. Self-healing usually occurs within 6 months, but skin scarring and changes in pigmentation always follow. Treatment is based on:</p> <ul style="list-style-type: none"> <li>❑ Pentavalent antimonials, except when resistance exists. They can be administered systemically (IM or IV), or locally (intralesional infiltrations). WHO recommends the following course: 20 mg/kg/day for 20 days.</li> <li>❑ In the presence of resistance, second-line drugs must be used. Standard amphotericin-B, amanosidine plus pentavalent antimonials or pentamidine isethionate are the main alternatives.</li> </ul> <p><b>Other therapeutic options include:</b></p> <ul style="list-style-type: none"> <li>❑ Antifungal drugs (e.g. Ketoconazole)</li> <li>❑ Cryotherapy</li> </ul>
<p><b>Epidemic control</b></p>	<p>CL epidemics can be controlled by an integrated, feasible and efficient strategy based on:</p> <ul style="list-style-type: none"> <li>❑ <b>Provision of first line drugs</b> (pentavalent antimonials) to improve cure-rate and (in case of ACL) reduce transmission</li> <li>❑ <b>Provision of long-lasting bednets</b> (Insecticide Treated Nets – ITNs) to limit contact between human and vector</li> <li>❑ <b>Health education and social interventions</b> to increase awareness and improve early diagnosis, early health-seeking and good treatment compliance.</li> </ul>
<p><b>Prevention</b></p>	<ul style="list-style-type: none"> <li>❑ <b>Personal protective measures</b> are effective in preventing contact between sand flies and man. Such measures include skin repellents, vaporizing liquids, bednets impregnated or sprayed with pyrethroids, screened doors and windows.</li> <li>❑ <b>Vector control:</b> application of residual insecticides on surfaces where sand flies rest, such as indoor and outdoor walls, tree trunks, rock crevices, water wells, and flowering plants, could be effective in reducing the size of the sand fly population over time and thus decrease the risk of infection, but is not recommended since it produces a transient effect only.</li> <li>❑ <b>Reservoir control (ZCL only):</b> control methods must be adapted to the biology of each species (anticoagulants, poison baits, deep ploughing to eliminate plants on which the rodents feed, use of artificial canals or barriers to prevent colonization or reinvasion).</li> <li>❑ <b>Systematical case detection and rapid treatment (ACL only):</b> in anthroponotic foci, early diagnosis and prompt treatment of cases reduce the transmission cycle.</li> </ul>

## 10. LEISHMANIASIS (VISCERAL) or Kala-azar

### DESCRIPTION

<b>Infectious agent</b>	Protozoan: <i>Leishmania donovani</i> .
<b>Case definition</b>	<p><b>Clinical description</b> An illness with prolonged (&gt;2 weeks) irregular fever, splenomegaly and weight loss as its main symptoms.</p> <p><b>Laboratory criteria</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Positive parasitology <ul style="list-style-type: none"> <li>- stained smears from bone marrow, spleen, liver, lymph node, blood</li> <li><b>or</b></li> <li>- culture of the organism from a biopsy or aspirated material</li> </ul> </li> <li><input type="checkbox"/> Positive serology (immunofluorescent assay, ELISA, Direct Agglutination Test)</li> </ul> <p><b>WHO operational definition</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> A case of visceral leishmaniasis (VL) is a person showing clinical signs of prolonged (&gt;2 weeks) irregular fever, splenomegaly and weight loss with serological (<i>at peripheral geographical level</i>) and/or (<i>when feasible at central level</i>) parasitological confirmation of the diagnosis. In endemic malarious areas, visceral leishmaniasis must be suspected when fever lasts for more than 2 weeks and no response has been achieved with anti-malarial drugs (assuming drug-resistant malaria has also been considered).</li> </ul>
<b>Mode of transmission</b>	<p>Vector-borne, through the bite of infective female phlebotomines (sand flies). The vector is still not known: <i>Phlebotomus alexandri</i> has been identified in VL foci. Transmission dynamics have not been elucidated fully: reservoirs of the disease are believed to be domestic dogs, jackals, foxes and (maybe) rats.</p>
<b>Incubation</b>	Usually between 2 and 6 months. Intensity of infection, partial immunity resulting from previous exposure, intercurrent illness, malnutrition and other factors may play a role in determining the acuteness or slowness of the course.
<b>Period of communicability</b>	An infected subject may transmit the parasite to sandflies as long as the parasite persists in the circulating blood or skin. Transmission to sandflies may persist even after clinical recovery of human patients.

### EPIDEMIOLOGY

<b>Burden</b>	<p><b>Number of cases reported (incidence rate per 100,000):</b></p> <table> <tr> <td><b>2001:</b> 2,893 cases (10.9)</td> <td><b>1994:</b> 2,787 cases (13.9)</td> </tr> <tr> <td><b>2000:</b> 2,611 cases (10.4)</td> <td><b>1993:</b> 3,817 cases (19.1)</td> </tr> <tr> <td><b>1999:</b> 744 cases (3.0)</td> <td><b>1992:</b> 3,866 cases (20.0)</td> </tr> <tr> <td><b>1998:</b> 874 cases (3.6)</td> <td><b>1991:</b> 3,713 cases (18.9)</td> </tr> <tr> <td><b>1997:</b> 794 cases (3.5)</td> <td><b>1990:</b> 576 cases (3.0)</td> </tr> <tr> <td><b>1996:</b> 3,434 cases (15.7)</td> <td><b>1989:</b> 491 cases (2.6)</td> </tr> <tr> <td><b>1995:</b> 3,110 cases (15.1)</td> <td></td> </tr> </table>	<b>2001:</b> 2,893 cases (10.9)	<b>1994:</b> 2,787 cases (13.9)	<b>2000:</b> 2,611 cases (10.4)	<b>1993:</b> 3,817 cases (19.1)	<b>1999:</b> 744 cases (3.0)	<b>1992:</b> 3,866 cases (20.0)	<b>1998:</b> 874 cases (3.6)	<b>1991:</b> 3,713 cases (18.9)	<b>1997:</b> 794 cases (3.5)	<b>1990:</b> 576 cases (3.0)	<b>1996:</b> 3,434 cases (15.7)	<b>1989:</b> 491 cases (2.6)	<b>1995:</b> 3,110 cases (15.1)	
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<b>Geographical distribution</b>	The most important endemic area is central Iraq and the Greater Baghdad area. Since 1991 the disease has extended to new areas rarely affected before, such as Missan, Thi-Qar, and Basrah governorates in south-eastern Iraq.														
<b>Seasonality</b>	VL shows a marked seasonality: the transmission period is between May and October, after the hatching of sandfly eggs. The peak in number of new cases is between December and January.														
<b>Recent epidemics</b>	No data available														

**RISK FACTORS FOR INCREASED TRANSMISSION**

<b>Population movement</b>	<b>Yes</b>	<p>Movements of population bring non-immune people to endemic areas and infected people to non-endemic areas where the vector is widespread. Both internal migration (displaced people) or movements of refugees (repatriation programmes) can contribute to the maintenance of an epidemic of visceral leishmaniasis</p> <p>Possible reasons of population movement:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Military operations</li> <li><input type="checkbox"/> Development of new agro-industrial projects</li> <li><input type="checkbox"/> Fast-growing or unplanned urbanization</li> </ul>
<b>Overcrowding</b>	<b>Yes</b>	Overcrowding can increase contacts between man and the animal reservoir
<b>Poor access to health services</b>	<b>No</b>	
<b>Food shortages</b>	<b>No</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> However, poor nutritional status increases susceptibility to VL infection and disease.</li> <li><input type="checkbox"/> Many patients seeking treatment in Iraq are also malnourished.</li> </ul>
<b>Lack of safe water and poor sanitation</b>	<b>No</b>	
<b>Others</b>	<b>No</b>	
<b>Risk assessment conclusions</b>		<p>The yearly incidence of VL was less than 1000 cases before 1990, most of them in the central part of Iraq within a 100 km radius around Baghdad. After the Gulf war (1991), the annual incidence increased to over 3000 cases.</p> <p>Many factors could explain the upsurge of VL in Iraq in recent years:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Deterioration of the health status of children below 5 years: malnutrition, immunodeficiencies and co-infections are probably the most important factors.</li> <li><input type="checkbox"/> Population movements from urban to rural settings due to economic difficulties that followed the imposition of sanctions: this can bring non-immune population into transmission areas.</li> <li><input type="checkbox"/> Increased density of sandfly vectors due to increased number of breeding sites generated by the destruction of water and sanitation systems, and shortage of proper insecticides, spraying and fogging machines and other supplies and equipment.</li> <li><input type="checkbox"/> Inefficient sewage treatment and disposal system.</li> <li><input type="checkbox"/> Accumulation of garbage in urban settings.</li> <li><input type="checkbox"/> Increase in canid (dog etc.) population</li> </ul>

## PREVENTION AND CONTROL MEASURES

<b>Case Management</b>	<p>Untreated clinically overt VL is usually fatal. Treatment is based on:</p> <ul style="list-style-type: none"> <li>❑ <b>1<sup>st</sup> line treatment:</b> pentavalent antimonials. WHO recommends the following course: 20 mg/kg/day for 30 days</li> <li>❑ <b>2<sup>nd</sup> line treatment:</b> amphotericin B, aminosidine, pentamidine</li> </ul>
<b>Epidemic control</b>	<p>VL epidemics can be controlled by an integrated, feasible and efficient strategy based on:</p> <ul style="list-style-type: none"> <li>❑ <b>Provision of first line drugs</b> (pentavalent antimonials) to improve cure-rate</li> <li>❑ <b>Provision of long-lasting bednets</b> (Insecticide Treated Nets - ITNs) to limit contact between human and vector</li> <li>❑ <b>Health education and social interventions</b> to increase awareness and improve early diagnosis, early health-seeking and good treatment compliance.</li> </ul>
<b>Prevention</b>	<ul style="list-style-type: none"> <li>❑ <b>Personal protective measures</b> are effective in preventing contact between sand flies and man. Such measures include skin repellents, vaporizing liquids, bednets impregnated or sprayed with pyrethroids, screened doors and windows.</li> <li>❑ <b>Vector control:</b> application of residual insecticides on surfaces where sand flies rest, such as indoor and outdoor walls, tree trunks, rock crevices, water wells, and flowering plants, could be effective in reducing the size of the sand fly population over time and thus decrease the risk of infection, but is not recommended due to its high cost, low sustainability, and logistic constraints.</li> <li>❑ <b>Dog control:</b> <ul style="list-style-type: none"> <li>(1) Culling of sero-positive dogs (this measure is no more recommended due to its transient effect)</li> <li>(2) Pyrethroid-impregnated collars (still under evaluation)</li> </ul> </li> </ul> <p>The Iraqi national plan for VL control consists of the following measures:</p> <ol style="list-style-type: none"> <li>1. Residual insecticide spraying</li> <li>2. Night fogging activities</li> <li>3. Reservoir control measures (e.g. euthanization of stray dogs)</li> <li>4. Entomological investigation in affected areas</li> <li>5. Case management and treatment</li> </ol>

# 11. MALARIA

## DESCRIPTION

<b>Infectious agent</b>	In Iraq, in recent years only vivax malaria has been transmitted, caused by the protozoan parasite <i>Plasmodium vivax</i> . Falciparum malaria has been eradicated from the country in the 1970s-1980s.
<b>Case definition</b>	<p><b><u>Clinical case definition</u></b></p> <ul style="list-style-type: none"> <li>• <b>Uncomplicated Malaria</b> Patient with fever or history of fever within the last 48 hours (with or without other symptoms such as nausea, vomiting and diarrhoea, headache, back pain, chills, myalgia) in whom other obvious causes of fever have been excluded.</li> </ul> <p>According to the IMCI guidelines under development, the whole country is considered as a low malaria risk area. Any child under 5 years old with fever and any danger sign (inability to drink or breastfeed, vomiting everything, convulsions, lethargy or unconsciousness) is classified as a “very severe febrile disease” case and should be referred urgently to hospital, after receiving pre-referral treatment. Also, any child with clinical signs of severe malnutrition or severe anaemia is to be referred urgently to hospital.</p> <p><b><u>Confirmed case</u></b></p> <p>Demonstration of malaria parasites in blood film by examining thick or thin smears. Note that only <i>P. vivax</i> exists in Iraq.</p> <p><b><u>Clinical description</u></b></p> <p>Anemia develops as a result of the destruction of erythrocytes, and may become severe in children. Severe types of vivax malaria have been described in the past in relation to malnutrition and other intercurrent diseases. Rupture of the enlarged and soft spleen following a minor accident may occur, but is a rare complication. The importance of vivax malaria lies mainly in the debility it produces as a result of relapses (due to the persisting liver forms of <i>P. vivax</i>).</p>
<b>Mode of transmission</b>	<p>Vector-borne, through infective female <i>Anopheles</i> mosquito bite: in Iraq there are 16 anopheline species. Primary malaria vectors are: <i>An. sacharovi</i>, <i>An. superpictus</i> and <i>An. stephensi</i>.</p> <ul style="list-style-type: none"> <li>• <i>An. sacharovi</i> – the most efficient malaria vector in Iraq – especially in the north.</li> <li>• <i>An. superpictus</i> – second most important malaria vector after <i>An. sacharovi</i>. Distributed widely in the northern part of the central region as well as in northern regions. <i>An. superpictus</i> prefers to breed in hilly and rocky areas.</li> <li>• <i>An. stephensi</i> – is confined to the southern and central parts of Iraq and requires saline water for breeding.</li> <li>• <i>An. pulcherrimus</i> has a wider geographical distribution but is not a known efficient malaria vector.</li> </ul> <p>Malaria may also be transmitted by injection of infected blood. Rarely, infants may contract malaria <i>in utero</i> due to trans-placental transfer of parasites, or during delivery.</p>

<b>Incubation</b>	Incubation period for mosquito-transmitted infection is approximately 8-14 days for <i>P. vivax</i> , but may be considerably longer (months).  Malaria should be considered in all cases of unexplained fever that starts at any time between one week after the first possible exposure to malaria risk and 2 months (or even later in rare cases) after the last possible exposure.
<b>Period of communicability</b>	Communicability is related to the presence of infective <i>Anopheles</i> mosquitoes and presence of infective gametocytes in the blood of patients. Untreated or insufficiently treated patients may be a source of mosquito infection for 1-2 years in vivax malaria.

## EPIDEMIOLOGY

<b>Burden</b>	<p><b>Number of cases reported:</b></p> <p><b>2001:</b> 1,120  <b>2000:</b> 3,859  <b>1999:</b> 4,134  <b>1998:</b> 9,684  <b>1997:</b> 13,959</p> <p>Malaria incidence has decreased greatly over the past few years. This has been accomplished as a result of widespread indoor residual spraying with insecticides (the mainstay of the current malaria control programme), but also due to other factors such as improved housing stability, increased access to drug treatment, reduction of breeding sites through drought, regulations preventing paddy rice field growing near residential areas, improved diagnosis, increased surveillance and public education.</p>
<b>Geographical distribution</b>	<p>Malaria mainly occurs in northern Iraq. Currently, indigenous malaria transmission is limited mainly to Dohouk, Erbil and Suleimaniyah governorates: out of the total 1,120 cases in year 2001, 935 (83%) occurred in those three governorates.</p> <p>Risk areas include rural and urban areas in the northern governorates of Dohouk, Ninevah, Erbil, Ta'meem and Suleimaniyah below 1,500 meters, but also the southern governorate of Basrah. Small, scattered, sporadic outbreaks probably occur in the southern and central areas from the Tigris-Euphrates River basin to the border with Iran. There is no local malaria transmission in Baghdad.</p>
<b>Seasonality</b>	Malaria risk exists from May to November. Peaks of transmission in May/June and September/November.
<b>Alert threshold</b>	Any increase in the number of cases above what is expected for the time of the year in a defined area.
<b>Recent epidemics</b>	Iraq experienced a serious malaria outbreak due to <i>P. vivax</i> after the 1991 Gulf war, with 94,236 and 98,705 cases reported annually in the country during the peak of the epidemic in 1994 and 1995 respectively. Discontinuation of spraying operations due to shortage of insecticides, disruption of health infrastructures, scarcity of properly trained staff, internal displacement of populations and lack of co-ordination between northern and central/southern governorates, all played a role in the origin and maintenance of this outbreak.

**RISK FACTORS FOR INCREASED TRANSMISSION**

<b>Population movement</b>	<b>Yes</b>	Several types of population movement, such as seasonal mass labour migration to zones of intensive irrigation are likely to increase the risk of malaria outbreaks. Other population movements as a result of war or to avoid direct and indirect effects of the UN sanctions, have been found responsible for the spread of malaria from endemic to once malaria-free zones in the early 1990s.
<b>Overcrowding</b>	<b>Yes</b>	Due to increased population density and increased exposure to mosquito bites in temporary shelters
<b>Poor access to health services</b>	<b>Yes</b>	Delays in access to effective treatment increase the pool of malaria gametocyte carriers (the mature sexual stage of the parasite in humans, that, once picked up in the blood feed of a mosquito, develops into the infective form for transmission to another human)
<b>Food shortages</b>	<b>No</b>	However, malnutrition increases vulnerability to complications of vivax malaria once infected, especially for small children.
<b>Lack of safe water and poor sanitation</b>	<b>No</b>	However, temporary surface water bodies may increase malaria vector breeding opportunities
<b>Others</b>	<b>Yes</b>	<ul style="list-style-type: none"> <li>• Breakdown of control measures and lack of preventive interventions, due to shortage of manpower (especially entomologists) and deficiencies in transport and timely delivery of material and equipment, such as insecticide, insecticide treated materials, drugs and spraying equipment.</li> <li>• Changes in agricultural practice leading to extensive mosquito breeding sites</li> <li>• Unusually long/warm summers</li> </ul>

## Risk assessment conclusions

After malaria eradication programme started in 1957, the number of cases of malaria dropped from the estimated 1 million in the 1950s to less than 4000 cases per year by the end of 1990s. *P. falciparum*, once common in the central and southern parts of Iraq, was eradicated, whereas transmission of *P. vivax* continued only in 4 Northern governorates. After the 1991 Gulf war, the situation deteriorated in the three northeastern governorates, and malaria soon spread outside this area. The climax of this epidemic of vivax malaria occurred in 1994-1995, with almost 200,000 cases. The number of cases started to decline from 1996, due to indoor spraying campaigns supported by WHO. Relatively high incidence of malaria is still observed in northeastern governorates (Erbil, Suleimaniyah, Dohouk) and adjoining Ninevah and Ta'meem governorates. Active transmission exists also in Basrah governorate in the South. The situation there is under control but remains unstable, however, due to the absence of fresh supplies of the insecticide. Most of the malaria vectors in Iraq have been found resistant to more than two insecticides.

### Priority areas and challenges

1. Restoration of supplies of insecticides and spraying equipment.
2. Capacity-building, especially in the north-eastern governorates and especially in the entomological/vector control and epidemic preparedness/response components. There is a need in applied research to adapt control methods to the new epidemiological realities.
3. Improvement of surveillance and filling the communication gap between the central Government and the authorities in the north-east, possibly with the help of WHO.
4. Community education and participation in all vector control activities through primary health care committees
5. Implementation of control measures based on long-lasting insecticide treated nets (that do not require re-treatment), especially in most high-risk areas (e.g. Zakhor district in Duhouk governorate)
6. Reorientation of the information system, streamlining the system of quality assurance of the microscopic diagnosis, malariological stratification, retrospective and prospective monitoring of meteorological information for epidemic forecasting.
7. Ensuring quality of drugs
8. Monitoring anti-malarial drug resistance

### Malaria National Programme objectives:

- To prevent and control malaria wherever it occurs as a health problem, so that socio-economic development is not hampered by its effects.
- To maintain the malaria-free status in areas where it has been already achieved.

### See also:

WHO/EMRO Roll Back Malaria website: <http://208.48.48.190/rbm/Index.htm>

## PREVENTION AND CONTROL MEASURES

<b>Case Management</b>	<p><b>National recommended treatment (<i>P. vivax</i> infection):</b></p> <p><u>Chloroquine 25 mg/kg over three days, given in an adult dose of (150 mg tablets):</u></p> <p>1<sup>st</sup> day: 4 tablets (600 mg) initially + 2 tablets (300 mg) after 6 hours  2<sup>nd</sup> day: 2 tablets (300 mg)  3<sup>rd</sup> day: 2 tablets (300 mg)</p> <p><b>plus</b></p> <p><u>Primaquine 0.25 mg/kg for 14 days, given in an adult dose of (15 mg tablets):</u></p> <p>1 tablet (15 mg) daily for 14 days, starting from the 4<sup>th</sup> day of treatment up to the 17<sup>th</sup>.</p> <ul style="list-style-type: none"> <li>☉ Primaquine is contraindicated during pregnancy, in persons with G-6-PD deficiency and in children under 1 year of age (half tablet is recommended in Iraq to children 1-4 years).</li> <li>☉ Weekly chloroquine prophylaxis (300mg chloroquine base/week in one dose) can be considered for pregnant women who have suffered during their current pregnancy a confirmed vivax malaria attack, to reduce the risk of new clinical attacks due to persistent liver forms. Primaquine antirelapse treatment can then be given after delivery.</li> </ul>
<b>Prevention and Control</b>	<p>At present malaria control measures in Iraq include environmental management, distribution of Gambusia fish, larviciding, indoor residual spraying with pyrethroids. Antimalarial are provided free of charge at all levels in endemic areas.</p> <ul style="list-style-type: none"> <li>• <b>Insecticide treated bednets (ITN):</b> Iraq has recently (December 2002) ordered a supply of 200,000 Olyset ® nets ("long lasting insecticide-treated nets") through WHO for deployment in the Northern governorates, to avoid the epidemiological situation that occurred in the early 1990s, when uncontrolled transmission resulted in a country-wide malaria epidemic. Bed nets are part of the local tradition in northern Iraq – in particular during the summer when residents sleep outdoors. By using long-lasting nets, a protection of longer duration will be assured. This is important in the current unstable environment, where regular timely Insecticide Residual Spraying (IRS) interventions and access to the malaria risk areas cannot be guaranteed. Implementation of this ITM project will be supported and closely supervised by EMRO and the local Roll Back Malaria consultant in Iraq.</li> <li>• <b>Chemoprophylaxis:</b> WHO recommends chloroquine prophylaxis for expatriate staff travelling to endemic areas in Iraq. Prophylaxis should be started a week before arrival, and be continued for four weeks upon return. Chemoprophylaxis must be complemented by personal protection measures. Chemoprophylaxis is not recommended on a population wide basis because it is extremely difficult to implement and assure compliance, and because it can accelerate the development of drug resistance.</li> <li>• Vigorous <b>health education</b> at community level should be encouraged to improve rapid treatment-seeking behaviour for fever cases during the transmission season.</li> </ul>

## 12. MEASLES

### DESCRIPTION

<b>Infectious agent</b>	Measles virus (genus <i>Morbillivirus</i> , family <i>Paramyxoviridae</i> )
<b>Case definition and classification</b>	<p><b>Clinical case definition:</b></p> <ul style="list-style-type: none"> <li>• Any person with:             <ul style="list-style-type: none"> <li>- Fever <b>and</b></li> <li>- Generalised maculopapular (i.e. non vesicular) rash, <b>and</b></li> <li>- Cough <b>or</b> coryza (i.e. runny nose) <b>or</b> conjunctivitis (i.e. red eyes);</li> </ul> </li> <li><b>Or</b></li> <li>• Any person in whom a clinical health worker suspects measles infection</li> </ul> <p><b>Laboratory criteria:</b> Presence of measles-specific IgM antibodies</p> <p><b>Case classification:</b></p> <ul style="list-style-type: none"> <li>• <u>Clinically confirmed</u>: A case that meets the clinical case definition</li> <li>• <u>Laboratory-confirmed</u> (only for outbreak confirmation and during the elimination phase):             <ul style="list-style-type: none"> <li>- A case that meets the clinical case definition and is laboratory-confirmed</li> <li><b>or</b></li> <li>- A case meeting clinical definition and epidemiologically linked by direct contact to a laboratory-confirmed case in which rash onset occurred 7-18 days earlier.</li> </ul> </li> </ul>
<b>Mode of transmission</b>	<ul style="list-style-type: none"> <li>• Airborne by droplet spread; or</li> <li>• Direct contact with the nasal and throat secretions of infected persons or via object (e.g. toys) that has been in close contact with an infected person</li> </ul>
<b>Incubation</b>	After infection there is an asymptomatic incubation period of 10-12 days, with a range from 7 to 18 days from exposure to the onset of fever
<b>Period of communicability</b>	Measles is most infectious from 4 days before the rash until 1-2 days after rash onset

### EPIDEMIOLOGY

<b>Burden</b>	<p><b>Number of cases reported:</b></p> <p><b>2001:</b> 4,088  <b>2000:</b> 726  <b>1999:</b> 9,920  <b>1998:</b> 43,735  <b>1990:</b> 3,045  <b>1980:</b> 26,542</p>	<p><b>Distribution of measles cases according to age (2001):</b></p> <p><b>&lt;1:</b> 17%  <b>1-4:</b> 33%  <b>5-9:</b> 26%  <b>10-14:</b> 18%  <b>15-19:</b> 4%  <b>20-24:</b> 3%  <b>&gt;24:</b> 0%</p>
	<p><b>Distribution of measles cases according to immunization status (2001):</b></p> <p>- <b>No doses received:</b> 51%          - <b>One dose or more:</b> 49%</p>	
<b>Geographical distribution</b>	Measles is endemic throughout the country and the expected number of measles cases is high.	
<b>Seasonality</b>	No data available	
<b>Alert threshold</b>	<input type="checkbox"/> One case must lead to an alert <input type="checkbox"/> Laboratory confirmation of all cases is not required. <input type="checkbox"/> Only several cases from each outbreak should be laboratory confirmed.	
<b>Recent epidemics</b>	No data available	

**RISK FACTORS FOR INCREASED TRANSMISSION**

<b>Population movement</b>	<b>Yes</b>	Importation and spreading of virus
<b>Overcrowding</b>	<b>Yes</b>	Crowded conditions facilitate transmission
<b>Poor access to health services</b>	<b>Yes</b>	Case-fatality ratios can be reduced by appropriate case management, including the administration of vitamin A supplements
<b>Food shortages</b>	<b>No</b>	However, disease is more severe among children with malnutrition and vitamin A deficiency
<b>Lack of safe water and poor sanitation</b>	<b>No</b>	
<b>Others</b>	<b>Yes</b>	Low immunization coverage in the area of origin of the refugees or internally displaced people, and/or the host area.
<b>Risk assessment conclusions</b>		<p>UNICEF studies have shown that apart from diarrhoea and ALRI, measles is the main infectious disease leading to mortality and morbidity among children under five in northern Iraq, and an important factor leading to micronutrient deficiencies, particularly vitamin A, iodine and iron deficiencies.</p> <p>A measles vaccination campaign targeting children 9 months to 5 years old was conducted nationwide in March 2002. Coverage higher than 90% was achieved in almost all governorates of Iraq.</p> <p>In south/central Iraq, more than two-thirds of measles cases are now occurring in older children (age 6-12), as a result of continuing low rates of routine immunization coverage. These children were not vaccinated in the mid-1990s when vaccines were in short supply.</p> <p><b>MCV (measles-containing vaccine) coverage:</b></p> <p><b>2001:</b> 80% (official country est.); 90% (WHO-UNICEF est.)  <b>2000:</b> 93% (official country est.)  <b>1999:</b> 94% (official country est.); 90% (WHO-UNICEF survey database)  <b>1998:</b> 79% (official country est.)  <b>1990:</b> 83% (official country est.)  <b>1980:</b> 35% (official country est.)</p>

**PREVENTION AND CONTROL MEASURES**

<b>Routine immunization</b>	<p>Iraq has a routine immunization policy (see <i>Annex 7</i>) which requires a dose of single antigen measles vaccine at 9 months, a dose of MMR (measles-mumps-rubella vaccine) at 15 months, and another dose of MMR at school entry.</p> <p>However, supplementary measles immunization campaigns may be required in order to reduce the risk of a measles outbreak.</p>
<b>Immunization campaigns</b>	<ul style="list-style-type: none"> <li>Immunize the population at risk as soon as possible. The priority is to <b>immunize children 6 months to 15 years old</b>, regardless of vaccination status or history of disease.</li> <li>Children who are vaccinated against measles before 9 months of age must receive a second measles vaccination. This should be given as soon as possible after 9 months, with at least 1 month as a minimum interval with the previous dose.</li> <li>All children 6 months - 5 years of age should also receive prophylactic Vitamin A supplementation. If evidence of clinical vitamin A deficiency in older age groups, treatment with Vitamin A should be initiated as per WHO guidelines</li> <li>To ensure safety of injection during immunization, auto-disable syringes and safety boxes are recommended. Safe disposal of used sharps should be ensured</li> </ul>

<b>Outbreak response</b>	<ul style="list-style-type: none"> <li>□ Inform the Health Authorities if one or more suspected cases are identified</li> <li>□ Confirm the suspected outbreak, following WHO guidelines</li> <li>□ Investigate suspected case: check if it fulfils the case definition, record date of onset, age and vaccination status</li> <li>□ Confirm the diagnosis: collect blood specimen from 3-5 initial reported cases</li> <li>□ Assess the extent of the outbreak and the population at risk</li> <li>□ Implement outbreak response measures: <ul style="list-style-type: none"> <li>• Give priority to <u>proper case management and immunization of groups at highest risk (e.g. children 6 months – 5 years) as soon as possible in neighbouring areas not yet affected by the outbreak and where the outbreak is likely to spread.</u></li> <li>• Promote social mobilization of parents in order to assure previously unvaccinated children 6 months – 5 years of age are immunized.</li> <li>• The presence of several cases of measles in an emergency setting does not preclude a measles immunization campaign. Even among individuals who have already been exposed to, and are incubating the natural virus, measles vaccine, if given <u>within three days</u> of exposure, may provide protection or modify the clinical severity of the illness.</li> <li>• Isolation is not indicated and children should not be withdrawn from feeding programmes.</li> </ul> </li> </ul>
<b>Case Management</b>	<p><b>For uncomplicated cases:</b></p> <ul style="list-style-type: none"> <li>• Give Vitamin A immediately upon diagnosis and ensure the child receives a second dose the next day (can be given to mother to administer at home)</li> <li>• Advise the parent to treat the child at home (control fever and provide nutritional feeding)</li> </ul> <p><b>For cases with non-severe eye, mouth or ear complications:</b></p> <ul style="list-style-type: none"> <li>• Children can be treated at home</li> <li>• Give Vitamin A immediately upon diagnosis and ensure that the child receives a second dose the next day (can be given to mother to administer at home)</li> <li>• If pus draining from the eyes, clean eyes and treat with 1% tetracycline eye ointment</li> <li>• If mouth ulcers, treat with gentian violet</li> <li>• If pus draining from the ear, clean ear discharge and treat with antibiotics for 5 days (amoxicillin –1<sup>st</sup> line- or cotrimoxazole-2<sup>nd</sup> line-, as per national ARI policy and IMCI guidelines currently under development)</li> <li>• Treat malnutrition and diarrhoea, if present, with sufficient fluids and high quality diet</li> </ul> <p><b>For cases with severe, complicated measles (any general danger signs*, clouding of cornea, deep or extensive mouth ulcers, pneumonia):</b></p> <ul style="list-style-type: none"> <li>• Refer urgently to hospital</li> <li>• Treat pneumonia with an appropriate antibiotic</li> <li>• If clouding of the cornea or pus draining from the eye, clean eyes and apply 1% tetracycline eye ointment</li> <li>• If the child has any eye signs indicating Vitamin A deficiency (i.e. night blindness, Bitôt spots, conjunctival and corneal dryness, corneal clouding or corneal ulceration), then he or she should receive a third dose of Vitamin A 2-4 weeks later</li> </ul> <p>*Inability to drink or breastfeed, vomiting everything, convulsions, lethargy or unconsciousness.</p>

## 13. MENINGOCOCCAL DISEASE (Meningitis and Septicaemic form)

### DESCRIPTION

<b>Infectious agent</b>	Bacterium: <i>Neisseria meningitidis</i> serogroups A,B,C,Y,W135
<b>Case definition and classification</b>	<p>□ <b>Clinical case definition:</b> An illness with sudden onset of fever (&gt;38.5 °C rectal &gt;38.0 °C axillary) <b>and one or more</b> of the following:</p> <ul style="list-style-type: none"> <li>• neck stiffness</li> <li>• altered consciousness</li> <li>• other meningeal sign <b>or</b> petechial or purpurial rash</li> </ul> <p>In patients under one year of age, suspect meningitis when fever is accompanied by bulging fontanelle.</p> <p>□ <b>Laboratory criteria:</b></p> <ul style="list-style-type: none"> <li>• Positive CSF antigen detection, <b>or</b></li> <li>• Positive culture</li> </ul> <p>□ <b>Case classification:</b></p> <ul style="list-style-type: none"> <li>• <b>Suspected:</b> a case that meets the clinical case definition.</li> <li>• <b>Probable:</b> a suspected case as defined above <b>and:</b> <ul style="list-style-type: none"> <li>- Turbid CSF (with or without positive Gram-stain), <b>or</b></li> <li>- Ongoing epidemic and epidemiological link to a confirmed case.</li> </ul> </li> <li>• <b>Confirmed:</b> a suspected or probable case with laboratory confirmation.</li> </ul>
<b>Mode of transmission</b>	Direct contact with respiratory droplets
<b>Incubation</b>	Incubation period varies between 2 to 10 days, most commonly 4 days
<b>Period of communicability</b>	From the beginning of the symptoms till 24 hours after the institution of the therapy, but the most important source of infection are asymptomatic carriers.

### EPIDEMIOLOGY

<b>Burden</b>	<p><b>Number of cases reported (incidence rate per 100,000):</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><b>2001:</b> 501 cases (1.9)</td> <td style="width: 50%;"><b>1994:</b> 3,128 cases (15.6)</td> </tr> <tr> <td><b>2000:</b> 574 cases (2.2)</td> <td><b>1993:</b> 3,772 cases (18.9)</td> </tr> <tr> <td><b>1999:</b> 656 cases (2.7)</td> <td><b>1992:</b> 4,534 cases (23.5)</td> </tr> <tr> <td><b>1998:</b> 1,025 cases (4.3)</td> <td><b>1991:</b> 5,792 cases (29.5)</td> </tr> <tr> <td><b>1997:</b> 1,202 cases (5.3)</td> <td><b>1990:</b> 1,810 cases (9.5)</td> </tr> <tr> <td><b>1996:</b> 691 cases (3.1)</td> <td><b>1989:</b> 2,259 cases (14.0)</td> </tr> <tr> <td><b>1995:</b> 3,853 cases (18.7)</td> <td></td> </tr> </table>	<b>2001:</b> 501 cases (1.9)	<b>1994:</b> 3,128 cases (15.6)	<b>2000:</b> 574 cases (2.2)	<b>1993:</b> 3,772 cases (18.9)	<b>1999:</b> 656 cases (2.7)	<b>1992:</b> 4,534 cases (23.5)	<b>1998:</b> 1,025 cases (4.3)	<b>1991:</b> 5,792 cases (29.5)	<b>1997:</b> 1,202 cases (5.3)	<b>1990:</b> 1,810 cases (9.5)	<b>1996:</b> 691 cases (3.1)	<b>1989:</b> 2,259 cases (14.0)	<b>1995:</b> 3,853 cases (18.7)	
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<b>Geographical distribution</b>	Throughout the country														
<b>Seasonality</b>	Throughout the year with higher incidence during cold months														
<b>Recent epidemics</b>	No data available														

## RISK FACTORS FOR INCREASED TRANSMISSION

<b>Population movement</b>	<b>Yes</b>	Travel, migration and displacement of people facilitate the circulation of virulent strains inside a country or from country to country.
<b>Overcrowding</b>	<b>Yes</b>	High density of susceptible people is an important risk factor for outbreaks.
<b>Poor access to health services</b>	<b>Yes</b>	<ul style="list-style-type: none"> <li>• Cases identification is crucial to rapidly implement control measures</li> <li>• Case fatality ratio in absence of treatment is usually very high (50%)</li> </ul>
<b>Food shortages</b>	<b>No</b>	
<b>Lack of safe water and poor sanitation</b>	<b>No</b>	
<b>Others</b>	<b>Yes</b>	Concurrent infections: upper respiratory tract infections may contribute to some meningococcal outbreaks.
<b>Risk assessment conclusions</b>		<ul style="list-style-type: none"> <li>• High risk of epidemics in overcrowded refugee camps</li> <li>• Lower risk of epidemics in the general population</li> </ul>

## PREVENTION AND CONTROL MEASURES

<b>Case Management</b>	<p>Meningococcal disease (either meningitis or septicaemia) is potentially fatal and should always be viewed as a medical emergency.</p> <p>□ <b><u>NON-EPIDEMIC CONDITIONS:</u></b></p> <ul style="list-style-type: none"> <li>• The Iraqi Ministry of Health recommends that any suspected case should be referred to a hospital immediately</li> <li>• Admission to a hospital or health centre is necessary for diagnosis (<u>lumbar puncture and CSF examination</u>). Lumbar puncture must be done as soon as meningitis is suspected, prior to starting antibacterials.</li> <li>• As infectivity of patients is moderate and disappears quickly following antimicrobial treatment, isolation of the patient is <b>not</b> necessary.</li> <li>• <u>Antimicrobial therapy</u> must be instituted as soon as possible after lumbar puncture (without waiting for laboratory results), and should be combined with supportive treatment.</li> </ul> <p>Initial <u>antimicrobial therapy</u> should be effective against the three major causes of bacterial meningitis <b>until bacteriological results are available:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">AGE GROUP</th> <th rowspan="2">PROBABLE PATHOGENS</th> <th colspan="2">ANTIBIOTIC THERAPY</th> </tr> <tr> <th>FIRST CHOICE</th> <th>ALTERNATIVE</th> </tr> </thead> <tbody> <tr> <td>Adults and children &gt;5</td> <td><i>S. pneumoniae</i></td> <td>Penicillin G</td> <td>Ampicillin or Amoxicillin Chloramphenicol Ceftriaxone or Cefotaxime</td> </tr> <tr> <td>Children 1 month – 5 years of age</td> <td><i>H. influenzae</i> <i>S. pneumoniae</i> <i>N. meningitidis</i></td> <td>Ampicillin or Amoxicillin (1)</td> <td>Chloramphenicol Ceftriaxone or Cefotaxime</td> </tr> <tr> <td>Neonates</td> <td>Gram-negative bacteria Group B streptococci Listeria</td> <td>Ampicillin and Gentamycin</td> <td>Ceftriaxone or Cefotaxime (2) Chloramphenicol (at reduced doses)</td> </tr> </tbody> </table> <p>(1) If <i>H. influenzae</i> is highly resistant to Ampicillin, Chloramphenicol should be given with Ampicillin. (2) No effect on Listeria</p>	AGE GROUP	PROBABLE PATHOGENS	ANTIBIOTIC THERAPY		FIRST CHOICE	ALTERNATIVE	Adults and children >5	<i>S. pneumoniae</i>	Penicillin G	Ampicillin or Amoxicillin Chloramphenicol Ceftriaxone or Cefotaxime	Children 1 month – 5 years of age	<i>H. influenzae</i> <i>S. pneumoniae</i> <i>N. meningitidis</i>	Ampicillin or Amoxicillin (1)	Chloramphenicol Ceftriaxone or Cefotaxime	Neonates	Gram-negative bacteria Group B streptococci Listeria	Ampicillin and Gentamycin	Ceftriaxone or Cefotaxime (2) Chloramphenicol (at reduced doses)
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	<p><b>Once diagnosis of meningococcal disease has been established</b>, many antimicrobials can be used: either <i>penicillin</i> or <i>ampicillin</i> is the drug of choice. <i>Chloramphenicol</i> is a good and inexpensive alternative. The third-generation cephalosporins, <i>Ceftriaxone</i> and <i>Cefotaxime</i>, are excellent alternatives but are considerably more expensive.</p> <p>A seven-day course is still the general rule for the treatment of meningococcal disease (beyond the neonatal period). The long-acting (oily) form of chloramphenicol has also been shown to be effective.</p> <p>□ <b><u>EPIDEMIC CONDITIONS:</u></b></p> <p>During epidemics of confirmed meningococcal disease, case management needs to be simplified to permit the health system to respond to rapidly expanding numbers of cases.</p> <ul style="list-style-type: none"> <li>• <b>Diagnosis:</b> as the flood of patients could make the routine use of lumbar puncture to confirm meningitis impossible, every suspected case of meningitis should be considered and treated as one of meningococcal meningitis.</li> <li>• <b>Treatment:</b> simplified treatment protocols are appropriate: long-acting <u>oily chloramphenicol</u> intramuscularly (100 mg/kg up to 3 grams in a single dose) is the drug of choice for all age groups, particularly in areas with limited health facilities. For patients who do not improve rapidly, an additional dose of the same antimicrobial is recommended 48 hours later.</li> </ul>
<p><b>Prevention</b></p>	<p>□ <b><u>NON-EPIDEMIC CONDITIONS:</u></b></p> <ul style="list-style-type: none"> <li>• <b>Vaccination:</b> to prevent secondary cases around a sporadic case of meningococcal disease, vaccine can be used for close contacts of patients with meningococcal disease due to A, C, Y, or W135 serogroups.</li> <li>• <b>Chemoprophylaxis:</b> the aim of chemoprophylaxis is to prevent secondary cases by eliminating nasopharyngeal carriage. To be effective in preventing secondary cases, chemoprophylaxis must be initiated as soon as possible (i.e. not later than 48 hours after diagnosis of the case). Its use should be restricted to close contacts of a case, which are defined as: <ul style="list-style-type: none"> <li>- <u>Household members</u> (i.e. persons sleeping in the same dwelling as the case)</li> <li>- <u>Institutional contacts who shared sleeping quarters</u> (i.e. for boarding-school pupils, roommates; for military camps, persons sharing a barracks);</li> <li>- <u>Nursery school or childcare centre contacts</u> (i.e. children and teachers who share a classroom with the case);</li> <li>- <u>Others</u> who have had contact with the patient's oral secretions through kissing or sharing of food and beverages.</li> </ul> <p>The drugs recommended by the Iraqi Ministry of Health are Rifampin (children and adults) or Ciprofloxacin (adults only).</p> </li> </ul> <p>□ <b><u>EPIDEMIC CONDITIONS:</u></b></p> <ul style="list-style-type: none"> <li>• <b>Vaccination:</b> a mass vaccination campaign, if appropriately carried out, is able to halt an epidemic of meningococcal disease. Laboratory diagnosis and confirmation of epidemic serogroups will guide the type of vaccine needed, either meningococcal polysaccharide bivalent A/C (if serogroup A or C is confirmed as the epidemic serogroup), or meningococcal polysaccharide tetravalent vaccine A/C/Y/W135 (if serogroup W135 or Y is confirmed). Vaccination will be concentrated in the area where the epidemic is maximal. <ul style="list-style-type: none"> <li>- <b>Refugee camp population:</b> Following confirmation (serogroup identified) of two cases, mass vaccination is recommended if the serogroup/s identified is/are included in either the bivalent (A/C) or tetravalent (A/C/Y/W135) vaccine. At risk populations (e.g. 2-30 years of age) should be given priority</li> </ul> </li> </ul>

	<ul style="list-style-type: none"><li>- <b>General population:</b> If an outbreak is suspected, vaccination should only be considered after careful investigation (including confirmation and serogroup identification) and the assessment of the population group at highest risk.</li><li>• <b>Chemoprophylaxis:</b> chemoprophylaxis of contacts of meningitis patients is NOT warranted during an epidemic for several reasons. In small clusters or outbreaks among closed populations (e.g. extended household, boarding schools), chemoprophylaxis may still be appropriate.</li></ul>
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## 14. PERTUSSIS (whooping cough)

### DESCRIPTION

<b>Infectious agent</b>	<i>Bordetella pertussis</i> , the pertussis bacillus
<b>Case definition and classification</b>	<p><b>Clinical description:</b> The initial stage, the <b>catarrhal stage</b>, is characterized by the insidious onset of coryza (runny nose), sneezing, low-grade fever, and a mild, occasional cough, similar to the common cold. The cough gradually becomes more severe and irritating, and after 1-2 weeks, the second, or <b>paroxysmal stage</b>, begins. The patient has bursts, or paroxysms, of numerous, rapid coughs, apparently due to difficulty expelling thick mucus from the tracheobronchial tree. At the end of the paroxysm, a long inspiratory effort is usually accompanied by a characteristic whoop.</p> <p>In younger infants, periods of apnoea may follow the coughing spasms, and the patient may become cyanotic (turn blue). Pneumonia is a relatively common complication (reported 21.7% of cases in developed countries); otitis, haemorrhages (subconjunctival petechiae and epistaxis), convulsions, encephalopathies and death occur more rarely). The disease lasts 4 to 8 weeks. Complications are more frequent and severe in younger infants. In developed countries the case fatality ratio among infants less than 1 month has been reported to be around 1%. Older persons (i.e. adolescent and adults), and those partially protected by the vaccine, may become infected with <i>B. pertussis</i>, but usually have milder disease.</p> <p>In the <b>convalescent stage</b>, recovery is gradual. The cough becomes less paroxysmal and disappears over 2 to 3 weeks. However, paroxysms often recur with subsequent respiratory infections for many months after the onset of pertussis. Fever is generally minimal throughout the course of pertussis.</p> <p><b>Clinical case definition:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> A case diagnosed as pertussis by a physician, or</li> <li><input type="checkbox"/> A person with a cough lasting at least 2 weeks <b>with at least one</b> of the following symptoms: <ul style="list-style-type: none"> <li>• Paroxysms (i.e. fits) of coughing</li> <li>• Inspiratory “whooping”</li> <li>• Post-tussive vomiting (i.e. vomiting immediately after coughing)</li> </ul> </li> </ul> <p><b>Laboratory criteria:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Isolation of <i>Bordetella pertussis</i>, or</li> <li><input type="checkbox"/> Detection of genomic sequences by polymerase chain reaction (PCR)</li> <li><input type="checkbox"/> Positive paired serology</li> </ul> <p><b>Case classification:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Clinical case:</b> A case that meets the clinical case definition</li> <li><input type="checkbox"/> <b>Confirmed case:</b> A clinical case that is laboratory-confirmed</li> </ul>
<b>Mode of transmission</b>	<p>Primarily by direct contact with discharges from respiratory mucous membranes of infected persons via the airborne route. Humans are the only hosts.</p> <p>Even though the disease may be milder in older persons, these infected persons may transmit the disease to other susceptible persons, including non-immunized or under-immunized infants. Adults are often found to be the first case in a household with multiple pertussis cases.</p>

<b>Incubation</b>	The incubation period usually lasts 7 to 10 days and rarely more than 14 days.
<b>Period of communicability</b>	<p>Pertussis is highly communicable in the early catarrhal stage. Communicability gradually decreases after the onset of the paroxysmal cough.</p> <p>Untreated patients may be contagious for up to 3 weeks after the onset of paroxysmal cough in the absence of treatment or up to 5 days after onset of treatment</p>

## EPIDEMIOLOGY

<b>Burden</b>	<p><b>Number of cases reported (incidence rate per 100,000):</b></p> <table> <tr> <td><b>2001:</b> 2,312 cases (8.7)</td> <td><b>1994:</b> 526 cases (2.6)</td> </tr> <tr> <td><b>2000:</b> 407 cases (1.6)</td> <td><b>1993:</b> 767 cases (3.8)</td> </tr> <tr> <td><b>1999:</b> 466 cases (1.9)</td> <td><b>1992:</b> 1,601 cases (8.3)</td> </tr> <tr> <td><b>1998:</b> 1,271 cases (5.3)</td> <td><b>1991:</b> 1,537 cases (7.8)</td> </tr> <tr> <td><b>1997:</b> 535 cases (2.3)</td> <td><b>1990:</b> 489 cases (2.5)</td> </tr> <tr> <td><b>1996:</b> 1,179 cases (5.4)</td> <td><b>1989:</b> 368 cases (2.0)</td> </tr> <tr> <td><b>1995:</b> 475 cases (2.3)</td> <td></td> </tr> </table>	<b>2001:</b> 2,312 cases (8.7)	<b>1994:</b> 526 cases (2.6)	<b>2000:</b> 407 cases (1.6)	<b>1993:</b> 767 cases (3.8)	<b>1999:</b> 466 cases (1.9)	<b>1992:</b> 1,601 cases (8.3)	<b>1998:</b> 1,271 cases (5.3)	<b>1991:</b> 1,537 cases (7.8)	<b>1997:</b> 535 cases (2.3)	<b>1990:</b> 489 cases (2.5)	<b>1996:</b> 1,179 cases (5.4)	<b>1989:</b> 368 cases (2.0)	<b>1995:</b> 475 cases (2.3)	
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<b>1995:</b> 475 cases (2.3)															
<b>Geographical distribution</b>	Throughout the country														
<b>Seasonality</b>	Pertussis has no distinct seasonal pattern, but may increase in the summer and fall.														
<b>Recent epidemics</b>	<p><i>June-December 1996 – Basrah:</i> a total of 133 referred cases presented with pertussis; 53 (39.8%) were children under 5 years. Of these 53, 10 were non-immunized infants under 2 months of age; 5 were non-immunized children aged more than 1 year.</p> <p>The male:female ratio for pertussis was 2:8 and 71.4% of the 133 cases had been immunized.</p> <p>Many more unreferred cases occurred.</p>														

## RISK FACTORS FOR INCREASED TRANSMISSION

<b>Population movement</b>	<b>Yes</b>	Importation and spreading of <i>B. pertussis</i> .
<b>Overcrowding</b>	<b>Yes</b>	Crowded conditions facilitate transmission. An older sibling or a parent usually brings the disease home.
<b>Poor access to health services</b>	<b>Yes</b>	No access to routine immunization services. Susceptibility of non-immunized individuals is universal, and vaccination is the mainstay of pertussis control.
<b>Food shortages</b>	<b>No</b>	
<b>Lack of safe water and poor sanitation</b>	<b>No</b>	
<b>Others</b>	<b>Yes</b>	Low DTP3 coverage (<80%).

<p><b>Risk assessment conclusions</b></p>	<p>The incidence of pertussis is still high in Iraq (2,312 reported cases in 2001). The high incidence despite high vaccination coverage can be attributed to the following factors:</p> <ul style="list-style-type: none"> <li>❑ Immunization protection mostly covers children 5-9 years of age who have taken four or five doses of DTP. Infants under 6 months of age who have not yet received the full benefit of immunization, and adolescent and adult populations with diminishing effectiveness of the vaccine are usually the most affected groups.</li> <li>❑ Poor nutrition is common especially among infants, leading to malnutrition, and severely increasing the risk of infection and disease.</li> </ul> <p>Pertussis is a potential problem if introduced into crowded refugee settings with many non-immunized children</p> <p><b><u>DTP3 coverage:</u></b></p> <p><b>2002:</b> 67% (est.)  <b>2001:</b> 74% (official country est.); 81% (WHO-UNICEF est.)  <b>2000:</b> 86% (official country est.)  <b>1999:</b> 90% (official country est.); 81% (WHO-UNICEF survey database)  <b>1998:</b> 86% (official country est.)  <b>1990:</b> 83% (official country est.)  <b>1980:</b> 13% (official country est.)</p>
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## PREVENTION AND CONTROL MEASURES

<p><b>Case Management</b></p>	<ul style="list-style-type: none"> <li>❑ Erythromycin or erythromycin estolate or – in case of allergies to erythromycin – trimethoprim-sulfamethoxazole (contraindicated during pregnancy) should be administered for 7-14 days to all <b>cases</b> and close <b>contacts</b> of persons with pertussis, regardless of age and vaccination status. Doses recommended by the Iraqi Ministry of Health are 40 mg/kg/day for children and 1 g/day for adults. Drug administration both (1) modifies the course of illness (if initiated early), and (2) eradicates the organism from secretions, thereby decreasing communicability.</li> <li>❑ Symptomatic treatment and supportive case-management</li> </ul>
<p><b>Immunization</b></p>	<p>The administration of vaccines is the most rational approach to pertussis control. Active primary immunization against <i>B. pertussis</i> infection with the <i>whole-cell vaccine</i> (wP) is recommended in association with the administration of diphtheria and tetanus toxoids (DTP). No single antigen pertussis vaccine is available.</p> <p>Although the use of <i>acellular vaccines</i> (aP) is less commonly associated with adverse reactions, price considerations affect their use, and wP vaccines are the vaccines of choice for most countries, including Iraq.</p> <p>In general, pertussis vaccine is not given to persons 7 years of age or older, since reactions to the vaccine (convulsions, collapse, high temperature) may be increased in older children and adults.</p> <p>The efficacy of the vaccine in children who have received at least 3 doses is estimated to be 80%: protection is greater against severe disease and begins to wane after about 3 years.</p>

<b>Epidemic control</b>	<p>The highly contagious nature of the disease leads to large numbers of secondary cases among non-immune contacts. Prophylactic antibiotic treatment (erythromycin) in the early incubation period may prevent disease, but difficulties of early diagnosis, costs involved and concerns related to the occurrence of drug resistance all limit prophylactic treatment to selected individual cases. Priority must be given to:</p> <ul style="list-style-type: none"><li>❑ Protecting children less than 1 year old and pregnant females in the last 3 weeks of pregnancy because of the risk of transmission to the newborn.</li><li>❑ Stopping infection among household members, particularly if there are children aged less than 1 year and pregnant women in the last 3 weeks of pregnancy.</li></ul> <p>The strategy relies on chemoprophylaxis of contacts within a maximum delay of 14 days following the first contact with the index case. Index cases must avoid contact with day-care centres, schools and other places regrouping susceptible individuals for up to 5 days after the beginning of treatment or up to 3 weeks after onset of paroxysmal cough, or till the end of cough, whichever comes first.</p> <p>All contact cases must have their immunization status verified and brought up to date.</p>
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## 15. POLIOMYELITIS

### DESCRIPTION

<b>Infectious agent</b>	Poliovirus ( <i>Enterovirus</i> group): types 1, 2, 3
<b>Case definition and classification</b>	<p><b>Clinical description:</b></p> <p>All 3 types of wild poliovirus may cause paralysis, although most infections (at least 95%) remain asymptomatic.</p> <p>Most symptomatic cases report merely a non-specific febrile illness lasting a few days, and corresponding to the <b>viremic</b> phase of the disease. In a few cases the fever can be followed by the abrupt onset of <b>meningitic</b> and <b>neuro-muscular</b> symptoms, such as stiffness in the neck, and pain in the limbs. Initial symptoms can also include fatigue, headaches, vomiting, constipation (or less commonly diarrhoea).</p> <p>In a very small percentage of cases (1 or less per 100 infected susceptible persons), the gradual onset (2-4 days) of flaccid paralysis can then follow. <b>Paralytic</b> disease usually affects the lower limbs, is typically asymmetric and is more severe proximally. Bulbar paralysis may also occasionally occur, leading to respiratory muscle involvement and death unless artificial respiration is resorted to. The mortality from paralytic poliomyelitis is between 2 and 10%, mainly due to bulbar involvement and/or respiratory failure.</p> <ul style="list-style-type: none"> <li>● Risk factors for paralytic disease are a large inoculum of virus, increasing age, pregnancy, recent tonsillectomy, strenuous exercise and intramuscular injections during the incubation period.</li> <li>● After the acute illness there is often a degree of recovery of muscle function. 80% of eventual recovery is attained within 6 months, although recovery of muscle function may continue for up to 2 years.</li> <li>● After many years of stable neurologic impairment, in 25-40% of patients new neuromuscular symptoms (weakness, pain and fatigue) develop (post-polio syndrome).</li> </ul> <p><b>Clinical case definition:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Acute flaccid paralysis (AFP) in a child aged &lt;15 years, including Guillain-Barré syndrome*<b>;</b> <b>or</b></li> <li><input type="checkbox"/> Any paralytic illness in a person of any age when polio is suspected.</li> </ul> <p>(*) For practical reasons, Guillain-Barré syndrome will be considered as poliomyelitis until proven otherwise</p> <p><b>Case classification:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <u>Suspected</u>: a case that meets the clinical case definition</li> <li><input type="checkbox"/> <u>Confirmed</u>: AFP with laboratory-confirmed wild poliovirus in stool sample</li> <li><input type="checkbox"/> <u>Polio-compatible</u>: AFP clinically compatible with poliomyelitis, but without adequate virological investigation</li> </ul>
<b>Mode of transmission</b>	Poliovirus is highly communicable. Transmission is primarily person-to-person via the fecal-oral route
<b>Incubation</b>	The time between infection and onset of paralysis is 4-30 days
<b>Period of communicability</b>	From 36 hours after infection, for 4-6 weeks

**EPIDEMIOLOGY**

<b>Burden</b>	<p><b>Number of cases reported:</b></p> <p><b>2002:</b> 0 wild-virus confirmed polio cases  <b>2001:</b> 0 wild-virus confirmed polio cases  <b>2000:</b> 4 wild-virus confirmed polio cases  <b>1999:</b> 67 wild-virus confirmed polio cases  <b>1998:</b> 0 wild-virus confirmed polio cases  <b>1997:</b> 2 wild virus confirmed polio cases</p>
<b>Geographical distribution</b>	In 1999, polio cases occurred in central/southern governorates; in 1997, in Ninevah and Wasit governorates.
<b>Seasonality</b>	Both 1997 cases and the earliest 1999 cases occurred in April-May.
<b>Alert threshold</b>	Any AFP case must be notified and investigated.
<b>Recent epidemics</b>	<p>1999: increase in number of polio cases reported from 9 of 15 central/southern governorates of Iraq, suggesting widespread transmission of poliovirus. As of 24 September, 16 cases, confirmed by isolation of wild poliovirus type 1, had occurred since May 10. Most cases were 2 years of age or younger non-immunized children, belonging both to nomadic cattle-herding and resident families. Factors contributing to this outbreak have been identified in declining routine immunization coverage in many areas, and insufficient National Immunization Day (NID) coverage in south and central governorates, especially among high-risk population. Also damaged sewage and water systems helped disseminate the virus. Intensive control measures composed of multiple NID rounds and mopping up campaigns have led to the cessation of this outbreak.</p> <p>1997: two cases of wild poliovirus type 1 occurred in Ninevah and Wasit governorates with onset in April and May 1997, respectively.</p>

**RISK FACTORS FOR INCREASED TRANSMISSION**

<b>Population movement</b>	<b>Yes</b>	Importation of virus
<b>Overcrowding</b>	<b>Yes</b>	Very important
<b>Poor access to health services</b>	<b>Yes</b>	<ul style="list-style-type: none"> <li>• No access to routine immunization services</li> <li>• Risk of undetected poliovirus circulation</li> </ul>
<b>Food shortages</b>	<b>No</b>	
<b>Lack of safe water and poor sanitation</b>	<b>Yes</b>	Generally poor sanitation.
<b>Others</b>	<b>No</b>	
<b>Risk assessment conclusions</b>	<p>The last polio case in Iraq occurred on January 26, 2000 (the last case in northern Iraq in 1998). Iraq is currently polio free, but the economic sanctions affecting health care delivery, the migration of people across national boundaries and civil unrest can help create conditions for the spread of poliovirus. Southern/central governorates are considered at highest risk.</p> <p><b>Pol3 coverage:</b></p> <p><b>2001:</b> 82% (official country est.); 84% (WHO-UNICEF est.)  <b>2000:</b> 86% (official country est.)  <b>1999:</b> 89% (official country est.); 87% (WHO-UNICEF survey database)  <b>1998:</b> 86% (official country est.)  <b>1990:</b> 83% (official country est.)  <b>1980:</b> 16% (official country est.)</p>	

## PREVENTION AND CONTROL MEASURES

<b>Case Management</b>	<p>Management of the acute phase of paralytic poliomyelitis is supportive and symptomatic. It comprises:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Bedrest</li> <li><input type="checkbox"/> Close monitoring of respiration; respiratory support in case of respiratory failure or pooling of pharyngeal secretions</li> <li><input type="checkbox"/> Moist hot packs for muscle pain and spasms</li> <li><input type="checkbox"/> Passive physical therapy to stimulate muscles and prevent contractures</li> <li><input type="checkbox"/> Anti-spasmodic drugs to produce muscular relaxation</li> <li><input type="checkbox"/> Frequent turning to prevent bedsores</li> <li><input checked="" type="checkbox"/> Hospitalization may be required: in this case the patient should be isolated.</li> <li><input checked="" type="checkbox"/> Disinfection of discharges, faeces and soiled articles, and immediate reporting of further cases are essential.</li> </ul>
<b>Immunization</b>	<p>Two types of poliovirus vaccine are available:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <u>Oral poliovirus vaccine (OPV):</u> OPV is a live vaccine including live attenuated strains of all three virus types, administered orally. It is easily administered by health workers or volunteers, induces a good humoral (antibody) and mucosal (intestine) immune response and is 4 times cheaper than inactivated poliovirus vaccine (IPV). OPV is the only vaccine of choice for poliomyelitis eradication because it achieves much better mucosal immunity than IPV and can therefore disseminate in the community whilst limiting the dissemination of wild poliovirus.</li> <li><input type="checkbox"/> <u>Inactivated poliovirus vaccine (IPV):</u> IPV, which can only be given by intramuscular injection and requires trained health workers, elicits an excellent antibody response, but only minimal intestinal mucosal response; it is much more expensive than IPV.</li> </ul> <p>Iraq has a <b>routine immunization policy</b>, which requires 6 doses of <b>OPV</b> (see <i>Annex 7</i>).</p> <p>However, <b>supplementary immunization activities</b> are also conducted in the country in order to increase the immunization coverage as much as possible: these consist of National Immunization Days (NIDs), sub-NIDs (mass campaigns similar to NIDs but in a smaller area), and mop-up campaigns, during which two <b>OPV</b> doses are given at an interval of 1 month to all children under 5 years, preferably during the season of low transmission for enteroviruses (cooler season).</p> <p><u>Supplementary Immunization activities in Iraq:</u> two rounds of NIDs are conducted each year in spring and autumn jointly by UNICEF and WHO. The first round of spring 2003 NIDs took place on 23-27 February (the second round is scheduled for approximately one month later).</p> <p><b>☛ In refugee camps, all children 0-59 months should be vaccinated on arrival. Any AFP case occurring in a camp must be notified and investigated.</b></p>
<b>Epidemic control</b>	<p>In case of suspected outbreak:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <u>Investigation response</u> <ol style="list-style-type: none"> <li>1. Clinical and epidemiological investigation</li> <li>2. Rapid virological investigation (specimens prioritized in a WHO accredited laboratory)</li> </ol> <p>Outbreak confirmation will be based on the isolation of wild poliovirus.</p> </li> <li><input type="checkbox"/> <u>Surveillance response</u> <ol style="list-style-type: none"> <li>1. House to house mop-up in a wide geographic area if no NIDs or sub-NIDs covering the area are planned within the next 3 months. If NIDs/sub-NIDs are planned, a major quality focus should be set on the area of the outbreak and adjacent districts.</li> <li>2. Enhancing the surveillance (intensive monitoring of all reporting units, ensuring active surveillance and zero reports, extensive retrospective record reviews, active case search in surrounding areas).</li> </ol> </li> </ul>

## 16. RABIES

### DESCRIPTION

<b>Infectious agent</b>	Rabies virus, a Rhabdovirus of the genus <i>Lyssavirus</i>
<b>Case definition and classification</b>	<p><b>Clinical description</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Paresis or paralysis, delirium, convulsions</li> <li><input type="checkbox"/> Without medical attention, death in about 6 days, usually due to respiratory paralysis.</li> </ul> <p><b>Clinical case definition</b></p> <p>An acute neurological syndrome (encephalitis) dominated by forms of hyperactivity (furious rabies) or paralytic syndrome (dumb rabies) that progresses toward coma and death, usually by respiratory failure, within 7-10 days after the first symptom.</p> <p><b>Laboratory criteria</b></p> <p>One or more of the following:</p> <ul style="list-style-type: none"> <li>• Detection of rabies viral antigens by direct fluorescent antibody (FA) in clinical specimens, preferably brain tissue (collected <i>post-mortem</i>)</li> <li>• Detection by FA on skin or corneal smear (collected <i>ante-mortem</i>)</li> <li>• FA positive after inoculation of brain tissue, saliva or CSF in cell culture, in mice or in suckling mice</li> <li>• Detectable rabies-neutralizing antibody titre in the CSF of an unvaccinated person</li> <li>• Identification of viral antigens by PCR on fixed tissue collected post mortem or in a clinical specimen (brain tissue or skin, cornea or saliva)</li> <li>• Isolation of rabies virus from clinical specimens and confirmation of rabies viral antigens</li> </ul> <p><b>Case classification</b></p> <p>HUMAN RABIES:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Suspected:</b> A case that is compatible with the clinical case definition</li> <li><input type="checkbox"/> <b>Probable:</b> A suspected case plus history of contact with a suspected rabid animal</li> <li><input type="checkbox"/> <b>Confirmed:</b> A suspected case that is laboratory-confirmed</li> </ul> <p>HUMAN EXPOSURE TO RABIES:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Possibly exposed:</b> A person who had close contact (usually a bite or a scratch) with a rabies-susceptible animal in (or originating from) a rabies-infected area.</li> <li><input type="checkbox"/> <b>Exposed:</b> A person who had close contact (usually a bite or a scratch) with a laboratory-confirmed rabid animal.</li> </ul>
<b>Mode of transmission</b>	Usually by the bite of an infected mammalian species (dog, cat, fox, bat, etc.). No human to human transmission has been documented.
<b>Incubation</b>	<input type="checkbox"/> The incubation period usually ranges from 2 to 10 days but may be longer (up to 7 years)
<b>Period of communicability</b>	<input type="checkbox"/> In dogs and cats, usually for 3-7 days before onset of clinical signs (rarely over 4 days) and throughout the course of the disease. Longer periods of excretion before onset of clinical signs have been observed with other animals.



## PREVENTION AND CONTROL MEASURES

<b>Case Management</b>	<p>There is no specific treatment for rabies, which is a fatal disease.</p> <p>The most effective mechanism of protection against rabies is to wash and flush a wound or point of contact with soap and water, detergent or plain water, followed by the application of ethanol, tincture or aqueous solution of iodine. Anti-rabies vaccine should be given for Category II and III exposures, as soon as possible according to WHO recognized regimens. Anti-rabies immunoglobulin should be applied for Category III exposures only. Suturing should be postponed, but if it is necessary immunoglobulin must first be applied. Where indicated, anti-tetanus treatment, antimicrobials and drugs should be administered to control infections other than rabies.</p> <p><b>Recommended treatments according to type of contact with suspect animal:</b></p> <table border="1" data-bbox="479 556 1445 997"> <thead> <tr> <th>Category</th> <th>Type of contact with suspect animal</th> <th>Recommended treatment</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>Touching or feeding an animal Licks on intact skin</td> <td>None, if reliable case history is available</td> </tr> <tr> <td>II</td> <td>Nibbling of uncovered skin Minor scratches or abrasions without bleeding Licks on broken skin</td> <td>Administer vaccine immediately, and stop if 10-day observation or laboratory techniques confirm suspect animal to be rabies negative</td> </tr> <tr> <td>III</td> <td>Single or multiple trans-dermal bites or scratches Contamination of mucous membrane with saliva</td> <td>Administer rabies immunoglobulin and vaccine immediately and stop if suspect animal confirmed as rabies negative</td> </tr> </tbody> </table> <p>➔ If a person develops the disease, death is inevitable.</p> <p>➔ Universal nursing barrier practices are necessary for the sick people.</p>	Category	Type of contact with suspect animal	Recommended treatment	I	Touching or feeding an animal Licks on intact skin	None, if reliable case history is available	II	Nibbling of uncovered skin Minor scratches or abrasions without bleeding Licks on broken skin	Administer vaccine immediately, and stop if 10-day observation or laboratory techniques confirm suspect animal to be rabies negative	III	Single or multiple trans-dermal bites or scratches Contamination of mucous membrane with saliva	Administer rabies immunoglobulin and vaccine immediately and stop if suspect animal confirmed as rabies negative
Category	Type of contact with suspect animal	Recommended treatment											
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III	Single or multiple trans-dermal bites or scratches Contamination of mucous membrane with saliva	Administer rabies immunoglobulin and vaccine immediately and stop if suspect animal confirmed as rabies negative											
<b>Epidemic control</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Immediate notification if one or more suspected cases are identified</li> <li><input type="checkbox"/> Confirm the outbreak, following WHO guidelines</li> <li><input type="checkbox"/> Confirm diagnosis and insure prompt management</li> </ul>												
<b>Prevention</b>	<p>WHO promotes:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Human rabies prevention through: <ul style="list-style-type: none"> <li>▪ Well-targeted post-exposure treatment using modern vaccine types and, when appropriate, antirabies immunoglobulin</li> <li>▪ Increased availability of modern rabies vaccine</li> </ul> </li> <li><input type="checkbox"/> Dog rabies elimination through mass vaccination of dogs and dog population management</li> </ul>												
<b>Immunization</b>	<p>Human preventive mass vaccination is generally not recommended but can be considered under certain circumstances for the age group 5 to 15 years</p>												

## 17. SCHISTOSOMIASIS

### DESCRIPTION

<b>Infectious agent</b>	Helminth: <i>Schistosoma haematobium</i> (agent of Urinary Schistosomiasis), blood fluke worms belonging to the class <i>Trematoda</i> .  Other <i>Schistosoma</i> species have never been reported from Iraq.
<b>Case definition and classification</b>	<ul style="list-style-type: none"> <li>• <b><u>URINARY SCHISTOSOMIASIS</u></b></li> </ul> <ol style="list-style-type: none"> <li>1. ENDEMIC AREAS (MODERATE OR HIGH PREVALENCE) <b>Suspected:</b> Not applicable. <b>Probable:</b> Not applicable. <b>Confirmed:</b> A person with: <ul style="list-style-type: none"> <li>- visible haematuria <b>or</b></li> <li>- with positive reagent strip for haematuria <b>or</b></li> <li>- with eggs of <i>S. haematobium</i> in urine (microscope).</li> </ul> </li> <li>2. NON ENDEMIC AREAS AND AREAS OF LOW PREVALENCE <b>Suspected:</b> A person with: <ul style="list-style-type: none"> <li>- visible haematuria <b>or</b></li> <li>- with positive reagent strip for haematuria, <b>and</b></li> <li>- possibly infective water contact.</li> </ul> <b>Probable:</b> Not applicable. <b>Confirmed:</b> A person with eggs of <i>S. haematobium</i> in urine (microscope) </li> </ol>
<b>Mode of transmission</b>	Water-based disease:  Penetration of human skin by larval worms ( <i>Cercariae</i> ) developed in snail after that eggs have been discharged in urine into a body of fresh water by patients with chronic schistosomiasis.  <i>Bulinus truncatus</i> is the only <i>S. haematobium</i> snail intermediate host in Iraq.
<b>Incubation</b>	<ul style="list-style-type: none"> <li>• <u>within 4 days:</u> localized dermatitis at the site of cercarial penetration</li> <li>• <u>within 2-8 weeks:</u> acute febrile reaction (Katayama fever; almost completely absent in <i>S. haematobium</i> infection)</li> <li>• <u>3 months to several years:</u> chronic illness manifestations</li> </ul>
<b>Period of communicability</b>	As long as eggs are discharged by patients: 10-12 weeks to more than 10 years after infection.

### EPIDEMIOLOGY

<b>Burden</b>	No recent data available.  From 1990 to 1994 the prevalence of the disease decreased from about 60/100,000 to about 20/100,000.
<b>Geographical distribution</b>	The endemic areas in Iraq include the valleys of the Euphrates and the Tigris. The confluence of these two great rivers remains Iraq's most important schistosomiasis focus. The intermediate host, <i>Bulinus truncatus</i> , is not found in these rivers' beds, as their waters are generally carrying clay particles from the mountains in which they rise and have high concentrations of mineral salts, especially during the summer low waters, which inhibits its establishment. Instead snail habitats are found in the vast marshlands that surround these rivers in southern and central Iraq.
<b>Seasonality</b>	Dry periods tend to increase transmission of the disease due to higher cercarial densities in bodies of water and to drying of wells with consequent increased use of unsafe water.

<b>Recent epidemics</b>	Schistosomiasis is an endemic disease, with little likelihood of rapid changes in incidence. Surveys may identify areas of particularly high endemicity where mass treatment will be warranted.
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### RISK FACTORS FOR INCREASED TRANSMISSION

<b>Population movement</b>	<b>Yes</b>	The extent of urinary schistosomiasis in Mesopotamia has been influenced by the population movements related to pilgrimages to two holy cities of the Islamic Shiite rite, An Najaf and Karbala
<b>Overcrowding</b>	<b>Yes</b>	Higher human densities increase the chances for snails to be penetrated and colonised by <i>miracidia</i> .
<b>Poor access to health services</b>	<b>Yes</b>	Regular treatment of cases has proven effective in reducing or preventing introduction of <i>Schistosoma spp.</i> into "Schistosoma-free" areas.
<b>Food shortages</b>	<b>No</b>	
<b>Lack of safe water and poor sanitation</b>	<b>Yes</b>	Use of surface water infested by <i>cercariae</i> , and contamination of water by urination, are essential for transmission of schistosomiasis.
<b>Others</b>	<b>Yes</b>	Large-scale irrigation projects are likely to play a major role in the spreading of schistosomiasis. Humans working in flooded rice fields are considered at high risk.
<b>Risk assessment conclusions</b>		<ul style="list-style-type: none"> <li><input type="checkbox"/> Case-management and control of schistosomiasis are important interventions among emergency-affected emergencies due to the effect this disease has on the general status of infected individuals and on the increased severity of concomitant infections.</li> <li><input type="checkbox"/> The number of snail habitats decreased substantially over the period 1960s-1980s due to effective snail control within the National Control Programme. The actual burden of schistosomiasis in Iraq is unknown: irrigation schemes and economic difficulties leading to lack of control measures could have caused an increase in disease transmission; on the contrary, river pollution due to decay of infrastructure could have altered the intermediate host's (snail) habitat, resulting in decreased transmission.</li> </ul>

### PREVENTION AND CONTROL MEASURES

<b>Case Management</b>	<p>Praziquantel is the drug of choice for all schistosome parasites. A single oral dose of 40 mg/kg is generally sufficient to give cure rates of between 80% and 90% and dramatic reductions in the average number of eggs excreted.</p> <p>Praziquantel treatment for 1 person requires on average 3 tablets of 600 mg in 1 dose. The cost of a tablet is now less than US\$ 0.10, bringing the total drug cost of a treatment to about US\$ 0.35 (including distribution).</p>
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**Prevention**

1. Regular treatment of individuals according to the community categorization.

**Community diagnosis (through primary school surveys) for Schistosome infections**

**Community Category**

**Prevalence**

I – high prevalence	≥30% visible haematuria (by questionnaire) <b>OR</b> ≥50% infected (by parasitological methods)
II – moderate prevalence	<30% visible haematuria (by questionnaire) <b>OR</b> ≥10% but <50% infected (by parasitological methods)
III – low prevalence	<10% infected (by parasitological methods)

**Category 1:**

- Intervention in schools (enrolled and non-enrolled children): Targeted treatment of school-age children, once a year.
- Health Services and community based intervention: Access to Praziquantel for passive case-treatment + Community Directed Treatment for high-risk groups\* recommended.

**Category 2:**

- Intervention in schools (enrolled and non-enrolled children): Targeted treatment of school-age children, once every 2 years.
- Health Services and community based intervention: Access to Praziquantel for passive case treatment.

**Category 3:**

- Intervention in schools (enrolled and non-enrolled children): Targeted treatment of school-age children twice during the primary schooling (once on entry, again on leaving).
- Health services and community based intervention: Access to Praziquantel for passive case treatment

\* Such groups include preschool children, school-age children, pregnant women, and individuals whose work involves contact with fresh water

For the definition of classes of intensity and further information, see:  
*Prevention and Control of Schistosomiasis and Soil-transmitted helminthiasis*, First Report of the Joint WHO Expert Committees, WHO Technical Report Series, WHO, Geneva 2002.

2. Creation of alternative, safe water sources to reduce infective water contact.

3. Proper disposal of faeces and urine to prevent viable eggs from reaching bodies of water containing snail hosts.

4. Health education, information and communication to promote early care-seeking behaviour, use of safe water (if available) and proper disposal of excreta.

5. Environmental management – reduction of snail habitat and snail contact (in irrigation and agriculture practices)

6. Treatment of snail-breeding sites with molluscicides (if costs permit).

The Iraqi National Control Programme aim is to decrease incidence and prevent spread of the disease through:

- Examination of urine for ova of 10% of total health centres attendants.
- Surveillance for positive cases and polluted water collections in highly endemic areas.
- Treatment of positive cases with Praziquantel.
- Re-examination of treated cases.
- Treat polluted water collections with Bayluscide®

## 18. TUBERCULOSIS

### DESCRIPTION

<b>Infectious agent</b>	Bacterium: <i>Mycobacterium tuberculosis</i> . This complex includes <i>M. tuberculosis</i> and <i>M. africanum</i> primarily from humans, and <i>M. Bovis</i> primarily from cattle.
<b>Case definition and classification</b>	<p><b>A case of tuberculosis:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> A patient in whom tuberculosis has been bacteriologically confirmed, or has been diagnosed by a clinician.</li> </ul> <p><b>A definite tuberculosis case:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> A patient with culture positive for the <i>M. tuberculosis</i> complex.</li> <li><input type="checkbox"/> If culture is not routinely available, a patient with two sputum smears positive for acid-fast bacilli (AFB) is also considered a “definite case”.</li> </ul> <p><b>TB suspect:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Any person who presents with symptoms or signs suggestive of pulmonary TB, in particular cough of long duration <ul style="list-style-type: none"> <li>• May also have haemoptysis, chest pain, breathlessness, fever/night sweats, tiredness, loss of appetite and significant weight loss</li> <li>• All TB suspects should have three sputum samples examined by light microscopy; early morning samples are more likely to contain the TB organism than a sample later in the day. <ul style="list-style-type: none"> <li>- 1<sup>st</sup> day: patient provides an “on-the-spot” sample when he presents to the health facility (sample 1)</li> <li>- 2<sup>nd</sup> day: patient brings from home a sample collected in the night or early morning (sample 2)</li> <li>- 3<sup>rd</sup> day: patient provides another “on-the-spot” sample at the health facility (sample 3)</li> </ul> </li> </ul> </li> </ul> <p><u>Classification by localisation and bacteriology:</u></p> <p><b>Smear-positive pulmonary tuberculosis (PTB+):</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Diagnostic criteria should include: <ul style="list-style-type: none"> <li>- two or more initial sputum smear examinations positive for acid fast bacilli (AFB),</li> </ul> <p><b>or</b></p> <ul style="list-style-type: none"> <li>- one sputum smear examination positive for AFB <b>plus</b> radiographic abnormalities consistent with active pulmonary TB as determined by a clinician,</li> </ul> <p><b>or</b></p> <ul style="list-style-type: none"> <li>- one sputum smear examination positive for AFB <b>plus</b> sputum culture positive for <i>M. tuberculosis</i></li> </ul> </li> </ul> <p><b>Smear-negative pulmonary tuberculosis (PTB-):</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> A case of pulmonary tuberculosis that does not meet the above definition for smear-positive TB.</li> <li><input type="checkbox"/> Diagnostic criteria should include: <ul style="list-style-type: none"> <li>- at least three sputum smear specimens negative for AFB,</li> </ul> <p><b>and</b></p> <ul style="list-style-type: none"> <li>- radiographic abnormalities consistent with active pulmonary TB,</li> </ul> <p><b>and</b></p> <ul style="list-style-type: none"> <li>- no response to a course of broad spectrum antibiotics,</li> </ul> <p><b>and</b></p> <ul style="list-style-type: none"> <li>- decision by a clinician to treat with a full course of anti-tuberculosis chemotherapy.</li> </ul> </li> </ul>

	<p><b>Extra-Pulmonary tuberculosis:</b> TB of organs other than lungs: e.g. pleura, lymph nodes, abdomen, genito-urinary tract, skin, joints and bones, meninges, etc. Diagnosis should be based on one culture-positive specimen, or histological or strong clinical evidence consistent with active extra-pulmonary TB, followed by a decision by a clinician to treat with a full course of anti-TB chemotherapy. <u>Note:</u> a patient diagnosed with both pulmonary and extra-pulmonary TB should be classified as a case of pulmonary TB.</p>
<b>Mode of transmission</b>	<ul style="list-style-type: none"> <li>• Exposure to tubercle bacilli in airborne droplet nuclei produced by people with pulmonary or laryngeal tuberculosis during expiratory efforts, such as coughing and sneezing. Extra-pulmonary tuberculosis (other than laryngeal) is usually non-infectious.</li> <li>• Bovine tuberculosis results from exposure to tuberculous cattle, usually by ingestion of unpasteurized milk or dairy products, and sometimes by airborne spread to farmers and animal handlers</li> </ul>
<b>Progression to active disease</b>	<p>Progression to active disease can take from weeks to years; latent infections may persist throughout life. The risk of TB occurrence is relatively high during the first year following TB infection, then progressively decreases by half within the 4-5 following years.</p> <p>Only 10% of infected people with normal immune system will develop clinically evident TB at some point in life: 5% will have an early progression of the disease (primary tuberculosis); the remaining 5% will have a late progression of the disease (post-primary tuberculosis) after a period of initial containment.</p>
<b>Period of communicability</b>	As long as viable tuberculosis bacilli are being discharged in the sputum. Effective treatment usually eliminates communicability within 2 weeks.

## EPIDEMIOLOGY

<b>Burden</b>	<p><b>Estimated number of new cases (2000):</b> 30,211 <b>Estimated number of new cases of smear positive TB (ss+) (2000):</b> 13,595</p>
<b>Geographical distribution</b>	Even if specific data are not available, tuberculosis is known to be widespread in the country.
<b>Seasonality</b>	No specific seasonality is reported
<b>Alert threshold</b>	An increase in number of cases in crowded settings must lead to an alert
<b>Recent epidemics in the country</b>	<p>A noticeable increase in the number of TB cases has been observed since 1990.</p> <p>The estimated incidence of TB (estimated new cases/100,000/year) increased from 46.1 in 1989 to 66.8 in 1992. In 2000, this was estimated at 131.6, while the incidence of notified cases (notified new cases/100,000/year) was 42.2.</p>

**RISK FACTORS FOR INCREASED TRANSMISSION**

<b>Population movement</b>	<b>Yes</b>	Mainly due to the interruption in treatment and increased duration of communicability
<b>Overcrowding</b>	<b>Yes</b>	Overcrowding is recognized as one of the most important factors leading to increase risk of transmission
<b>Poor access to health services</b>	<b>Yes</b>	<ul style="list-style-type: none"> <li>• People affected by TB who cannot access health services and be treated, remain infectious for a longer period</li> <li>• The fatality rate is high (about 50%) without proper treatment</li> <li>• The interruption of treatment is the most important cause of development of multi-drug resistant TB (MDR-TB)</li> </ul>
<b>Food shortages</b>	<b>No</b>	However, poor nutritional status increases vulnerability to TB infection and development of active disease.
<b>Lack of safe water and poor sanitation</b>	<b>No</b>	
<b>Others</b>	<b>No</b>	
<b>Risk assessment conclusions</b>		<p>Iraq is in a phase of routine implementation of the DOTS strategy, i.e. has a national TB policy based on WHO recommendations. DOTS was introduced in 1998 and the population coverage reached 100% in 2000. The Case-Detection Rate (new ss+ cases notified/new ss+ estimated) is 23% (2000). 50% of all new pulmonary TB cases detected in 2000 were smear-positive.</p> <p>The target is to detect 70% of all cases and successfully treat 85% of them by 2005.</p> <p><b>BCG coverage:</b></p> <p><b>2001:</b> 85% (official country est.); 93% (WHO-UNICEF est.)  <b>2000:</b> 79% (official country est.)  <b>1999:</b> 85% (official country est.); 93% (WHO-UNICEF survey database)  <b>1998:</b> 76% (official country est.)  <b>1990:</b> 95% (official country est.)  <b>1980:</b> 76% (official country est.)</p>

**PREVENTION AND CONTROL MEASURES**

<b>Case Management</b>	<p>➔ <b>Standardized short-course chemotherapy using regimens of 6 to 8 months.</b> Good case management includes directly observed therapy (DOT) during the intensive phase for all new sputum-smear positive cases, the continuation phase of rifampicin-containing regimens and the whole of the retreatment regimen.</p> <p>There are primarily three types of regimens: category 1 regimen for new smear positive (infectious) pulmonary cases, category 2 regimen for retreatment cases, and category 3 regimen for smear negative pulmonary or extra-pulmonary cases.</p> <p>The chemotherapeutic regimens are based on standardized combinations of 5 essential drugs: Rifampicin (R), Isoniazid (H), Pyrazinamide (P), Ethambutol (E) and Streptomycin (S).</p> <p>Each of the standardized chemotherapeutic regimens consist of 2 phases:</p> <ul style="list-style-type: none"> <li>- Initial (intensive) phase: 2-3 months, with 3-5 drugs given daily under direct observation</li> <li>- Continuation phase: 4-6 months, with 2-3 drugs given 3 times a week under direct observation, or in some cases (e.g. during repatriation of refugees) 2 drugs for 6 months given daily unsupervised, but in fixed dose combination form.</li> </ul>
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	<p>Staff should observe all doses of rifampicin-containing regimens. Actual swallowing of medication should be checked.</p> <p>Hospitalized patients should be kept in a separate ward for the first two weeks of treatment.</p> <p><b>See also:</b></p> <ul style="list-style-type: none"> <li>□ <i>WHO guidelines for Recommended Treatment Regime</i></li> <li>□ <i>Treatment of Tuberculosis: Guidelines for National Programmes (WHO/TB/97.220)</i></li> <li>□ <i>Tuberculosis Control in Refugee Situations: an Inter-Agency Field Manual (WHO/TB/97.221)</i></li> <li>□ <i>An Expanded DOTS Framework for Effective Tuberculosis Control (WHO/CDS/TB/2002.297)</i></li> </ul>
<b>Immunization</b>	<ul style="list-style-type: none"> <li>• BCG has been shown to be effective in preventing severe forms of TB such as meningitis in children.</li> <li>• BCG is strongly recommended for all newborn children and any children up to the age of 5 years who have not already received it.</li> <li>• The vaccination of newborns should be incorporated into the immunization programme for all children. Re-vaccination is not recommended.</li> </ul>
<b>Prevention and control</b>	<p>Detection and treatment of smear positive (infectious) TB cases is the most effective preventive measure.</p> <p>To ensure the appropriate treatment and cure of TB patients, strict implementation of the <u>DOTS strategy</u> is important. The DOTS strategy is the recommended strategy for TB control, and has the following components:</p> <ul style="list-style-type: none"> <li>• Government commitment to ensuring sustained, comprehensive TB control activities</li> <li>• Case detection by sputum smear microscopy among symptomatic patients self-reporting to health services</li> <li>• Standardized short-course chemotherapy using regimens of 6 to 8 months, for at least all confirmed smear positive cases. Good case management includes directly observed therapy (DOT) during the intensive phase for all new sputum-smear positive cases, the continuation phase of rifampicin-containing regimens and the whole retreatment regimen.</li> <li>• A regular, uninterrupted supply of all essential anti-TB drugs.</li> <li>• A standardized recording and reporting system that allows assessment of case-finding and treatment results for each patient and of the TB control programme's performance overall.</li> </ul> <p><b>Complementary control strategies:</b></p> <ul style="list-style-type: none"> <li>• Health education to improve awareness and reduce stigma</li> <li>• Maintaining good ventilation and reducing overcrowding in health clinics, and ensuring hospitalized patients are kept in a separate ward for the first two weeks of treatment.</li> <li>• Isoniazid prophylaxis is not recommended in refugee situations, except for children being breast-fed by smear positive mothers. If the child is well, BCG vaccination should be postponed and isoniazid should be given to the child for 6 months. In the event of a sudden disruption to the programme, isoniazid may be stopped, and BCG should be given before the child leaves the refugee camp (preferably after a one week interval)</li> </ul>

## 19. TYPHOID FEVER

### DESCRIPTION

<b>Infectious agent</b>	Bacterium: <i>Salmonella typhi</i>
<b>Case definition and classification</b>	<p><b>Suspected case (clinical case definition):</b> Clinical diagnosis is difficult. In absence of laboratory confirmation, any case with fever of at least 38° for 3 or more days is considered suspect if the epidemiological context is conducive</p> <p><b>Confirmed case:</b> A suspected case with isolation of <i>S. typhi</i> from blood or stool cultures</p> <p><b>Carriers:</b> <i>S. typhi</i> organisms persisting in stools or urine for &gt;1 year after onset of the disease</p>
<b>Mode of transmission</b>	<p>Fecal oral route, particularly ingestion of water and food contaminated by faeces and urine of patients and carriers.</p> <p>Faecal carriers occur in about 2% of infected adults. Patients with concurrent <i>Schistosoma haematobium</i> infection are at higher risk of becoming urinary carriers of <i>Salmonella typhi</i>.</p>
<b>Incubation</b>	Incubation period is usually 8-14 days but may be from 3 days up to one month
<b>Period of communicability</b>	From the symptomatic period for 2 weeks. 2-5% of infected cases remain carriers for several months. Chronic carriers are greatly involved in the spread of the disease

### EPIDEMIOLOGY

<b>Burden</b>	<p><b>Number of cases reported:</b></p> <table> <tr> <td><b>2001:</b> 21,356 cases</td> <td><b>1994:</b> 24,436 cases</td> </tr> <tr> <td><b>2000:</b> 24,614 cases</td> <td><b>1993:</b> 22,688 cases</td> </tr> <tr> <td><b>1999:</b> 23,392 cases</td> <td><b>1992:</b> 19,276 cases</td> </tr> <tr> <td><b>1998:</b> 19,825 cases</td> <td><b>1991:</b> 17,524 cases</td> </tr> <tr> <td><b>1997:</b> 14,464 cases</td> <td><b>1990:</b> 2,240 cases</td> </tr> <tr> <td><b>1996:</b> 15,238 cases</td> <td><b>1989:</b> 1,812 cases</td> </tr> <tr> <td><b>1995:</b> 26,634 cases</td> <td></td> </tr> </table>	<b>2001:</b> 21,356 cases	<b>1994:</b> 24,436 cases	<b>2000:</b> 24,614 cases	<b>1993:</b> 22,688 cases	<b>1999:</b> 23,392 cases	<b>1992:</b> 19,276 cases	<b>1998:</b> 19,825 cases	<b>1991:</b> 17,524 cases	<b>1997:</b> 14,464 cases	<b>1990:</b> 2,240 cases	<b>1996:</b> 15,238 cases	<b>1989:</b> 1,812 cases	<b>1995:</b> 26,634 cases	
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<b>1995:</b> 26,634 cases															
<b>Geographical distribution</b>	No data available														
<b>Seasonality</b>	No data available.														
<b>Alert threshold</b>	Two or more linked cases														
<b>Recent epidemics</b>	No data available														

### RISK FACTORS FOR INCREASED TRANSMISSION

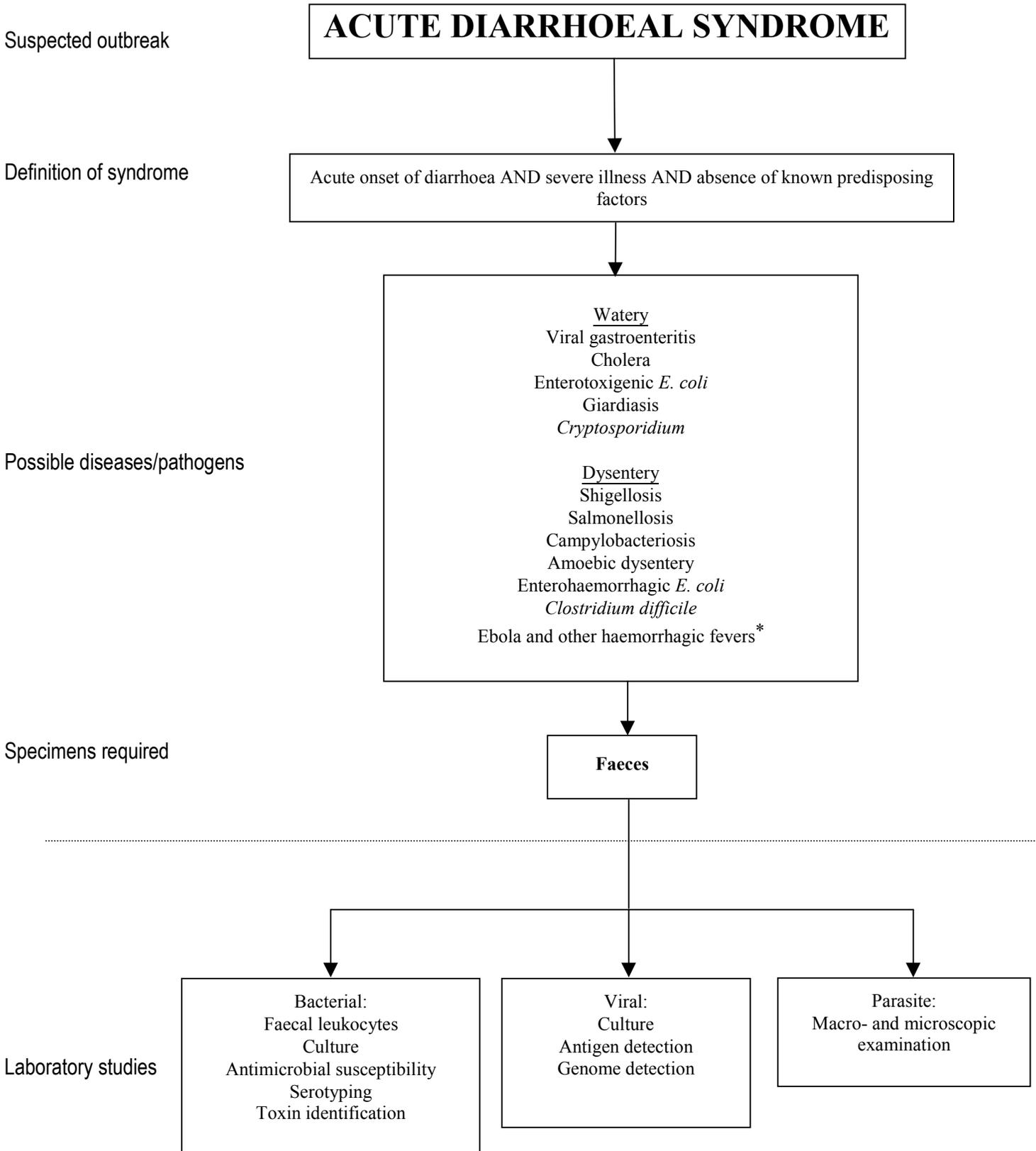
<b>Population movement</b>	<b>Yes</b>	Dissemination of multi-drug resistant strains of <i>S. typhi</i>
<b>Overcrowding</b>	<b>Yes</b>	Very important
<b>Poor access to health services</b>	<b>Yes</b>	<ul style="list-style-type: none"> <li>• Early detection and containment of the cases are paramount to reduce dissemination</li> <li>• Case fatality rate is high (10-20%) in absence of a proper treatment</li> </ul>

<b>Food shortages</b>	<b>No</b>	
<b>Lack of safe water and poor sanitation</b>	<b>Yes</b>	The most important risk factor
<b>Others</b>	<b>Yes</b>	<ul style="list-style-type: none"> <li>• Multi-drug resistant strains of <i>S. typhi</i>, including resistance to ciprofloxacin</li> <li>• Milk and dairy products are an important source of infection</li> </ul>
<b>Risk assessment conclusions</b>		In the general population the risk is related to the lack of availability of safe food and water

## PREVENTION AND CONTROL MEASURES

<b>Case Management</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Early antimicrobial treatment, selected according to the antimicrobial resistance pattern of the strain: <ul style="list-style-type: none"> <li>➔ Quinolones (e.g. oral ciprofloxacin) are the drugs of choice. Cotrimoxazole, chloramphenicol, ciprofloxacin and ampicilline are also used, but some strains have developed widespread resistance to these antibiotics in the past 30 years. More recently, in some areas resistance to ciprofloxacin has emerged.</li> </ul> </li> <li><input type="checkbox"/> Supportive care such as oral or intravenous rehydration, antipyretics and appropriate nutrition also plays an important role.</li> </ul>
<b>Epidemic control</b>	<p>Epidemics often occur as point-source epidemics, ranging from healthy carriers to food (including use of contaminated utensils). Outbreaks may occur through person-to-person contamination (faecal-oral transmission via contaminated hands or instruments). Direct faecal contamination of untreated water supplies may cause extensive outbreaks.</p> <p>Investigations must pinpoint the source and mode of infection to identify corrective measures for application (chlorination/boiling of water, selective elimination of suspect food).</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Inform the Health Authorities if one or more suspected cases are identified</li> <li><input type="checkbox"/> Confirm the outbreak, following WHO guidelines</li> <li><input type="checkbox"/> Confirm the diagnosis and ensure prompt treatment</li> </ul>
<b>Prevention</b>	<p><b>See:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>Section on Diarrhoeal Diseases</i></li> <li><input type="checkbox"/> <i>Annex 3 : Safe Water and Sanitation</i></li> </ul>
<b>Immunization</b>	<ul style="list-style-type: none"> <li>• Mass immunization may be an adjunct for the control of typhoid fever during a sustained, high incidence epidemic. This is especially true when access to well-functioning medical services is not possible or in the case of a multi-drug resistant strain</li> <li>• A parenteral vaccine containing the polysaccharide Vi antigen is the vaccine of choice amongst displaced populations. An oral, live vaccine using <i>S. typhi</i> strain Ty21a is also available</li> <li>• Neither the polysaccharide vaccine nor the Ty21a vaccine is licensed for children under two years old. The Ty21a vaccine should not be used in patients receiving antibiotics</li> </ul>

## ANNEX 1 : Flowcharts for the Diagnosis of Communicable Diseases



\* Ebola and other haemorrhagic fevers may initially present as bloody diarrhoea. If such an aetiology is suspected, refer to "Acute Haemorrhagic Fever Syndrome" for appropriate specimen collection guidelines.

Suspected outbreak

**ACUTE HAEMORRHAGIC FEVER SYNDROME**

Definition of syndrome

Acute onset of fever of less than 3 weeks duration AND any two of the following:

- Haemorrhagic or purpuric rash
- Epistaxis
- Haemoptysis
- Blood in stool
- Other haemorrhagic symptom

AND absence of known predisposing factors

Possible diseases/pathogens

Dengue haemorrhagic fever and shock syndrome  
 Yellow fever  
 Other arboviral haemorrhagic fevers (e.g. Rift Valley, Crimean Congo, Tick-borne flaviviruses)  
 Lassa fever and other arenoviral haemorrhagic fevers  
 Ebola or Marburg haemorrhagic fevers  
 Haemorrhagic fever with renal syndrome (hantaviruses)  
 Malaria  
 Relapsing fever

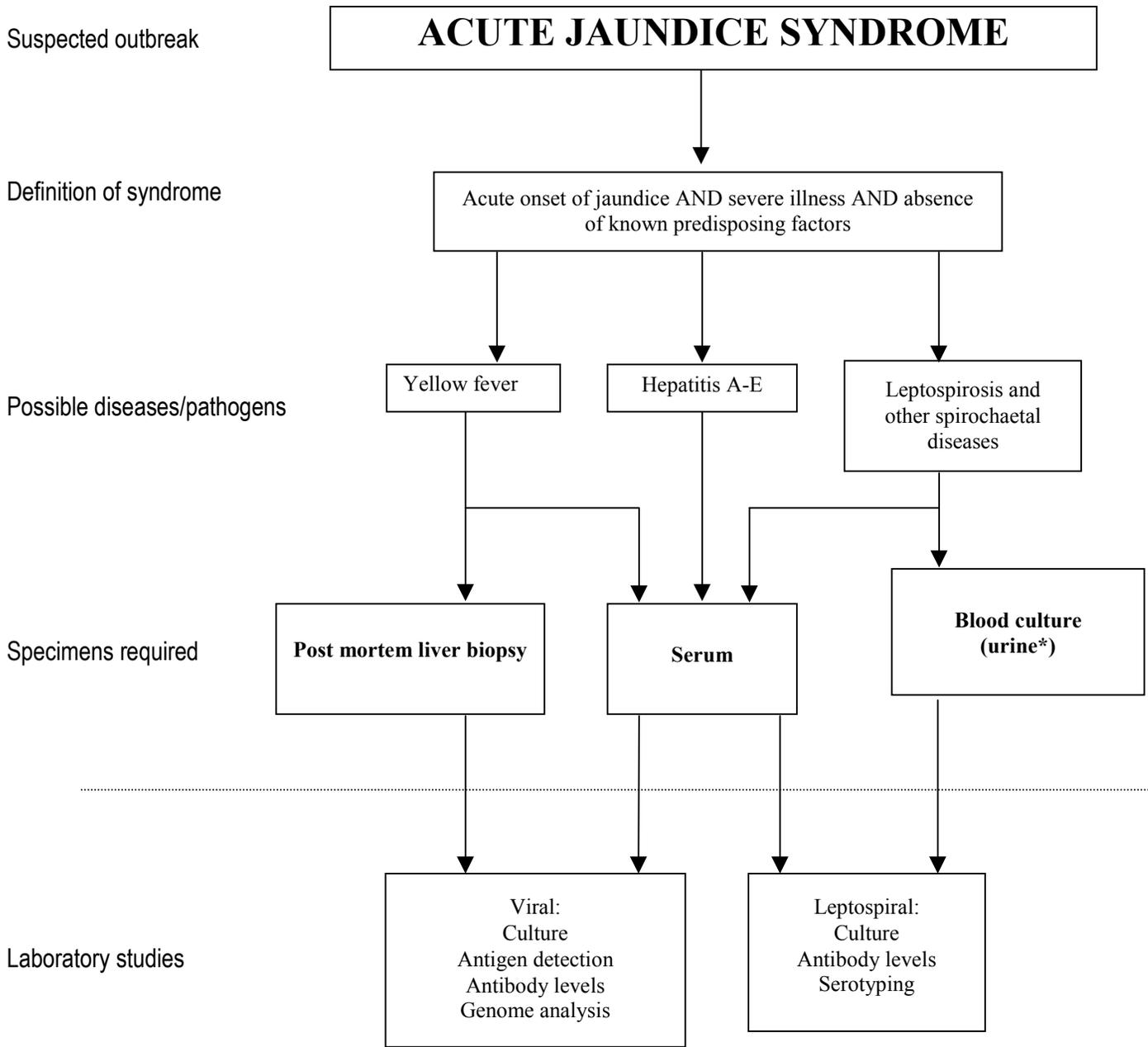
Specimens required

**Blood**  
**Blood smear**  
**Serum**  
**Post-mortem tissue specimens (e.g. skin biopsy and/or liver biopsy)**

Laboratory studies

Viral:  
 Culture  
 Antigen detection  
 Antibody levels  
 Genome detection

Parasitic:  
 Demonstration of pathogen



\* Requires specialized media and handling procedures

Suspected outbreak

# ACUTE NEUROLOGICAL SYNDROME

Definition of syndrome

Acute neurological dysfunction with one or more of the following:

- Deterioration of mental function
- Acute paralysis
- Convulsions
- Signs of meningeal irritation
- Involuntary movements
- Other neurological symptoms

AND severe illness AND absence of predisposing factors

Possible diseases/  
pathogens

Poliomyelitis or  
Guillain Barré  
syndrome

Viral, bacterial, fungal, or  
parasitic meningo-encephalitis

Rabies

Specimens required

Faeces

CSF  
Blood Culture  
Blood smears  
Serum  
Throat swab

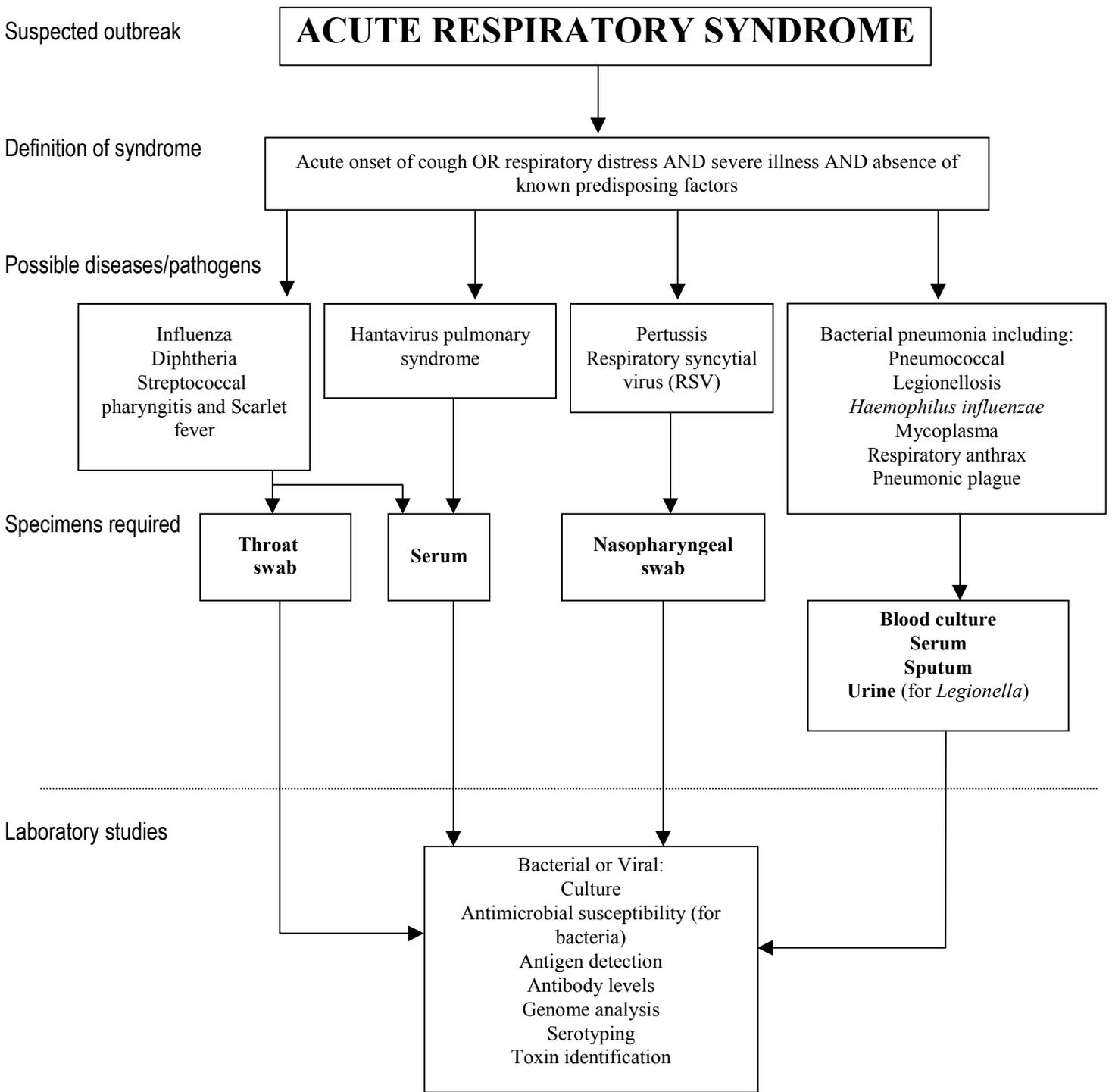
Serum  
Post mortem specimens (e.g.  
corneal impressions, brain  
tissue, skin biopsy from neck)

Laboratory studies

Viral:  
Culture

Bacterial  
(including Leptospiral):  
Gram stain and other  
microscopic techniques  
Culture  
Antimicrobial susceptibility  
Antigen detection  
Serotyping

Viral:  
Culture  
Antigen detection  
Antibody levels  
Genome analysis



Adapted from: Guidelines for the collection of clinical specimens during field investigation of outbreaks. WHO/CDS/CSR/EDC/2000.4

## ANNEX 2 : Steps for Management of a Communicable Disease Outbreak

<p><b>1. PREPARATION</b></p> <p>Health Co-ordination meetings: identification of tasks and responsible persons          Surveillance system – Weekly Health Reports to WHO          Stockpiles – specimen kits, appropriate antibiotics, IV fluids          Epidemic Investigation kits          Contingency plans for isolation wards in hospitals          Laboratory support</p>
<p><b>2. DETECTION</b></p> <p>If you diagnose a case of the following diseases/syndromes:</p> <ul style="list-style-type: none"> <li>➤ <i>Bloody diarrhoea</i></li> <li>➤ <i>Acute watery diarrhoea</i></li> <li>➤ <i>Suspected cholera</i></li> <li>➤ <i>Measles</i></li> <li>➤ <i>Meningitis</i></li> <li>➤ <i>Acute haemorrhagic fever syndrome</i></li> <li>➤ <i>Acute jaundice syndrome</i></li> </ul> <p>or <i>a cluster of deaths of unknown origin</i></p> <ul style="list-style-type: none"> <li>➔ Inform your Health Co-ordinator as soon as possible</li> <li>➔ Health Co-ordinator shall inform WHO</li> <li>➔ Take a clinical specimen for laboratory confirmation (e.g. stool, serum, CSF)</li> <li>➔ Include the case in Weekly Health Report</li> </ul>
<p><b>3. CONFIRMATION</b></p> <ul style="list-style-type: none"> <li>➤ MoH will investigate cases reported to verify that an outbreak exists, in collaboration with WHO where appropriate</li> <li>➤ Clinical specimens will be sent for testing</li> <li>➤ MoH will set up an Outbreak Control Team with membership from relevant organizations - WHO, health NGOs, water and sanitation NGOs, veterinary experts, UNICEF</li> <li>➤ Experts from WHO-Global Outbreak Alert and Response Network may be mobilised to provide field support for investigation and control if necessary.</li> </ul>
<p><b>4. RESPONSE</b></p> <p><b>Investigation</b></p> <ul style="list-style-type: none"> <li>• Collect/analyse descriptive data to date (e.g. age, date of onset, location of cases)</li> <li>• Develop hypothesis for pathogen/source/transmission</li> <li>• Develop outbreak case definition</li> <li>• Follow up of cases and contacts</li> <li>• Conduct further investigation/epidemiological studies</li> </ul> <p><b>Control</b></p> <ul style="list-style-type: none"> <li>• Implement control measures specific for the disease</li> <li>• Treat cases with recommended treatment as in WHO guidelines</li> <li>• Prevent exposure (e.g. isolation of cases in viral haemorrhagic fever outbreak)</li> <li>• Prevent infection (e.g. immunization in measles outbreak)</li> </ul>
<p><b>4. EVALUATION</b></p> <ul style="list-style-type: none"> <li>• Assess timeliness of outbreak detection and response, cost</li> <li>• Change public health policy if indicated (e.g. preparedness)</li> <li>• Write outbreak report and disseminate</li> </ul>

## ANNEX 3 : Safe Water and Sanitation

The following are effective methods to obtain safe drinking water:

### Boiling

To make water safe for drinking and hygiene purposes, bring water to a vigorous, rolling boil and keep it boiling for 1 minute. This will kill, or inactivate, most of the organisms that cause diarrhoea.

### Household filtration

Household filtration should considerably reduce the pathogens in the water. It should be followed by disinfection through chlorination or boiling.

### Disinfection through chlorination

The following guidelines should be translated into messages that take into account locally available products and measuring devices. To make water safe by chlorination, the first step is to make a stock solution of chlorine.

A stock solution can be prepared by adding the following products to one litre of water:

Product (% concentration by weight of available chlorine)	Amount for 1 litre
Calcium hypochlorite (70 %); or	15g
Bleaching powder or chlorinated lime (30%); or	33g
Sodium hypochlorite (5%); or	250 ml
Sodium hypochlorite (10 %); or	110 ml

The stock solution must be stored in a closed container, in a cool dark place and used within one month. It should be used to prepare safe water as follows:

Stock solution	Added volume of Water
0.6 ml or 3 drops	1 litre
6 ml	10 litres
60 ml	100 litres

Mix by stirring and allow the chlorinated water to stand for at least 30 minutes before using it. The free residual chlorine level after 30 minutes should be between 0.1 to 0.5 mg/litre. If the free residual chlorine is not within this range the number of drops of the stock solution should be adjusted so the final product falls within this range.

If the water is cloudy or turbid it must either be filtered before chlorination or boiled vigorously rather than chlorinated. Chlorination of turbid water might not make it safe.

*See: Guidelines for Cholera Control, WHO 1993 and Fact Sheets on Environmental Sanitation for Cholera Control, WHO 1996*

### Sanitation

Good sanitation can markedly reduce the risk of transmission of intestinal pathogens, especially where its absence may lead to contamination of clean water sources. High priority should be given to observing the basic principles of sanitary human waste disposal, as well as to ensuring the availability of safe water supplies.

Appropriate facilities for human waste disposal are a basic need of all communities; in the absence of such facilities there is a high risk of water-related diseases. Sanitary systems that are appropriate for the local conditions should be constructed with the co-operation of the community.

People will need to be taught how to use latrines, about the dangers of defecating on the ground, or in or near waters, and about the importance of thorough hand-washing with soap or ash after any contact with excreta. The disposal of children's excreta in latrines needs to be emphasized.

*See: Fact Sheets on Environmental Sanitation for Cholera Control, WHO 1996 and A Guide to the Development of On-site Sanitation, WHO 1992*

## ANNEX 4 : Injection Safety

Analysis of data collected as part of the Comparative Risk Assessment component of the Global Burden of Disease study suggests that the region which includes Iraq faces substantial challenges in terms of unsafe injection practices and transmission of blood-borne pathogens through injections. In this region, the proportion of new infections with Hepatitis B, Hepatitis C, and HIV that are attributable to unsafe injections practices are 58.3%, 81.7% and 7.1% respectively.

However, in Iraq 90% of EPI injections are administered safely (clean preparation, safe reconstitution and use of sterile syringe and needle), while therapeutic injections are safe in 70% of cases. Sharps are presently collected in safety boxes in 70% of immunization and 50% of therapeutic settings, while they are found in open containers in 25% of health facilities.

Thus, in any relief efforts to assist the population and the refugees in this region of the world, safe and appropriate use of injections should be ensured through the following actions:

### PATIENTS:

- State a preference for oral medications when visiting health care facilities
- Demand a new, single-use syringe for every injection

### HEALTH WORKERS:

- Avoid prescribing injectable medication whenever possible
- Use new, single-use syringe for every injection
- Do not recap syringes and immediately discard them in a sharp box to prevent needlestick injury
- Dispose of by open-air incineration and burial of full sharp boxes

### IMMUNIZATION SERVICES:

- Deliver vaccines with matching quantities of auto-disable syringes and sharp boxes
- Make sterile syringes and sharp boxes available in every health care facility

### ESSENTIAL DRUGS:

- Build rational use of injections in the National drug policy
- Make single-use syringes available in quantities that match injectable drugs in every health care facility

### HIV-AIDS PREVENTION:

- Communicate the risk of HIV infection associated with unsafe injections

### HEALTH CARE SYSTEM:

- Monitor safety of injections as a critical quality indicator for health care delivery

### MINISTRY of HEALTH:

- Coordinate safe and appropriate National policies with appropriate costing, budgeting and financing

### REMEMBER:

- Observe the "ONE SYRINGE/ONE NEEDLE SET-ONE INJECTION" rule
- A safe injection is one that:
  - Does no harm to the recipient
  - Does not expose the health worker to avoidable risk
  - Does not result in waste that puts other people at risk
- An unsterile injection is usually caused by:
  - Reusable syringes that are not properly sterilised before use
  - Single-use syringes that are used more than once
  - Used syringes and needles which are not disposed of properly

## ANNEX 5 : Key Contacts for Iraq Crisis

Table 1: WHO Country Office

<p><b>World Health Organization – Iraq Office</b></p> <p>PO Box 2048 Baghdad, Iraq</p>	<p><b>Dr Gholam Rabani Popal</b> <i>The WHO Representative</i> (<a href="mailto:popalg@un.org">popalg@un.org</a>)</p> <p><b>Dr Jim Tulloch</b> <i>Deputy to the WHO Representative and UN Health Sector Coordinator, currently based at the UN Regional Coordination Office in Cyprus</i> (<a href="mailto:tullochj@who.int">tullochj@who.int</a>)</p> <p><b>Dr Omer Mekki</b> <i>Medical Officer</i> (<a href="mailto:mekki@un.org">mekki@un.org</a>)</p> <p><b>Location:</b> Building N°6, street N°10 Area (902) Hay Al Wahda Alwiya, Baghdad Tel: +964-1-717-0961 / 3761 +964-1-718-6749 +964-1-719-7610 1-212-963-3010 / 2859 / 2861 (through UNOHCI) Fax: +964-1-718-0875 E-mail: <a href="mailto:who-baghdad@un.org">who-baghdad@un.org</a></p>
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Table 2: Overall Co-ordination

EMRO contact	HQ contact
<p><b>Dr Mohamed A. Jama</b> <a href="mailto:jamam@emro.who.int">jamam@emro.who.int</a></p> <p><b>Mr Altaf Musani</b> <a href="mailto:musania@emro.who.int">musania@emro.who.int</a></p>	<p><b>Dr David Nabarro</b> <a href="mailto:nabarrod@who.int">nabarrod@who.int</a></p> <p><b>Dr Alessandro Loretta</b> <a href="mailto:lorettia@who.int">lorettia@who.int</a></p> <p><b>Dr Khalid Shibib</b> <a href="mailto:shibibk@who.int">shibibk@who.int</a></p>

Table 3: Relevant WHO Regional Offices and Headquarters Technical Staff on Communicable Diseases

Areas of work	EMRO contact	HQ contact
CD control	Dr Ezzeddine Mohsni <a href="mailto:mohsnie@emro.who.int">mohsnie@emro.who.int</a>	Dr Máire Connolly <a href="mailto:connollyma@who.int">connollyma@who.int</a>
Outbreak Alert and Response	Dr Nadia Teleb <a href="mailto:telebn@emro.who.int">telebn@emro.who.int</a>	Dr Mike Ryan <a href="mailto:ryanm@who.int">ryanm@who.int</a> Mr Pat Drury <a href="mailto:druryp@who.int">druryp@who.int</a>
Acute Lower Respiratory Infections	Dr Suzanne Farhoud <a href="mailto:farhouds@emro.who.int">farhouds@emro.who.int</a>	Dr Shamim Qazi <a href="mailto:qazis@who.int">qazis@who.int</a>
Bacillary dysentery – cholera – typhoid fever – other diarrhoeal diseases	Dr Nadia Teleb <a href="mailto:telebn@emro.who.int">telebn@emro.who.int</a> Dr Suzanne Farhoud <a href="mailto:farhouds@emro.who.int">farhouds@emro.who.int</a>	Dr Claire-Lise Chaignat <a href="mailto:chaignatc@who.int">chaignatc@who.int</a> Dr Frédérique Marodon <a href="mailto:marodanf@who.int">marodanf@who.int</a>
Diphtheria	Dr Ezzeddine Mohsni <a href="mailto:mohsnie@emro.who.int">mohsnie@emro.who.int</a>	Dr Julian Bilous <a href="mailto:bilousj@who.int">bilousj@who.int</a>
HIV/AIDS	Dr Jihane Tawilah <a href="mailto:tawilahj@emro.who.int">tawilahj@emro.who.int</a> Dr Hany Ziady <a href="mailto:ziadyh@emro.who.int">ziadyh@emro.who.int</a>	Dr Andrew Ball <a href="mailto:balla@who.int">balla@who.int</a> Dr Brian Pazvakavambwa <a href="mailto:pazvakavambwab@who.int">pazvakavambwab@who.int</a>

Leishmaniasis	Dr Riadh Ben-Ismaïl <a href="mailto:ismailr@emro.who.int">ismailr@emro.who.int</a>	Dr Philippe Desjeux <a href="mailto:desjeuxp@who.int">desjeuxp@who.int</a>
Malaria	Dr Hoda Atta <a href="mailto:attah@emro.who.int">attah@emro.who.int</a> Dr Suzanne Farhoud <a href="mailto:farhouds@emro.who.int">farhouds@emro.who.int</a>	Dr Aafje Rietveld <a href="mailto:rietvelda@who.int">rietvelda@who.int</a> Dr Allan Schapira <a href="mailto:schapiraa@who.int">schapiraa@who.int</a>
Measles	Dr Ezzeddine Mohsni <a href="mailto:mohsnie@emro.who.int">mohsnie@emro.who.int</a>	Dr Brad Hersh <a href="mailto:hershb@who.int">hershb@who.int</a>
Meningococcal disease	Dr Nadia Teleb <a href="mailto:telebn@emro.who.int">telebn@emro.who.int</a>	Dr Maria Santamaria <a href="mailto:santamariam@who.int">santamariam@who.int</a> Dr William Perea <a href="mailto:pereaw@who.int">pereaw@who.int</a>
Pertussis (whooping cough)	Dr Ezzeddine Mohsni <a href="mailto:mohsnie@emro.who.int">mohsnie@emro.who.int</a>	Dr Philippe Duclos <a href="mailto:duclosp@who.int">duclosp@who.int</a>
Poliomyelitis	Dr Faten Kamel <a href="mailto:kamelf@emro.who.int">kamelf@emro.who.int</a>	Mr Chris Maher <a href="mailto:maherc@who.int">maherc@who.int</a> Ms Claire Chauvin <a href="mailto:chauvinc@who.int">chauvinc@who.int</a>
Rabies	Dr Riadh Ben-Ismaïl <a href="mailto:ismailr@emro.who.int">ismailr@emro.who.int</a>	Dr François-Xavier Meslin <a href="mailto:meslinf@who.int">meslinf@who.int</a>
Schistosomiasis	Dr Riadh Ben-Ismaïl <a href="mailto:ismailr@emro.who.int">ismailr@emro.who.int</a>	Dr Lorenzo Savioli <a href="mailto:saviolil@who.int">saviolil@who.int</a> Dr Dirk Engels <a href="mailto:engelsd@who.int">engelsd@who.int</a>
Tuberculosis	Dr Akihiro Seita <a href="mailto:seitaa@emro.who.int">seitaa@emro.who.int</a> Dr Samiha Baghdadi <a href="mailto:baghdadis@emro.who.int">baghdadis@emro.who.int</a>	Dr Salah-Eddine Ottmani <a href="mailto:ottmanis@who.int">ottmanis@who.int</a> Dr Malgosia Grzemska <a href="mailto:grzemska@who.int">grzemska@who.int</a>
Viral Haemorrhagic Fevers (including CCHF)	Dr Nadia Teleb <a href="mailto:telebn@emro.who.int">telebn@emro.who.int</a>	Dr Pierre Formenty <a href="mailto:formentyp@who.int">formentyp@who.int</a> Dr Cathy Roth <a href="mailto:rothc@who.int">rothc@who.int</a>
Health aspects of biological agents		Dr Ottorino Cosivi <a href="mailto:cosivio@who.int">cosivio@who.int</a>
Injection safety	Dr Nadia Teleb <a href="mailto:telebn@emro.who.int">telebn@emro.who.int</a>	Dr Yvan Hutin <a href="mailto:hutiny@who.int">hutiny@who.int</a>
Safe water	Dr Houssain Abouzaid <a href="mailto:abouzaidh@emro.who.int">abouzaidh@emro.who.int</a>	Mr Jose Hueb <a href="mailto:huebj@who.int">huebj@who.int</a>

**Table 4: WHO Offices in Neighbouring Countries**

<p><b>World Health Organization – Iran Office</b></p> <p>PO Box 11365-3597 Teheran, Islamic Republic of Iran</p>	<p><b>Dr El Fatih Zein El Samani</b> <i>The WHO Representative</i> Tel: +982-1-670-0361 (office) +982-1-670-6786 (direct) Fax: +982-1-670-8969 E-mail: <a href="mailto:whoteh@who.un.or.ir">whoteh@who.un.or.ir</a> <a href="mailto:felsamani@who.un.or.ir">felsamani@who.un.or.ir</a></p>
<p><b>World Health Organization – Jordan Office</b></p> <p>PO Box 811547 Amman, Jordan</p>	<p><b>Dr Ala'din A. S. Alwan</b> <i>The WHO Representative</i> Tel: +962-6-568-4651 +962-6-567-7532 +962-6-560-5027 Fax: +962-6-566-7533 E-mail: <a href="mailto:whoamman@go.com.jo">whoamman@go.com.jo</a> <a href="mailto:alwana@go.com.jo">alwana@go.com.jo</a></p>
<p><b>World Health Organization – Kuwait Office</b></p>	<p>There is currently no WHO Representative for Kuwait. You may contact: <b>Mrs Mervat Abou Shabana</b> <i>Kuwait Country Desk Officer at WHO-EMRO in Cairo, Egypt</i> Tel: +20-2-276-5278 Fax: +20-2-670-2492 or 20-2-670-2494 E-mail: <a href="mailto:ashabanam@emro.who.int">ashabanam@emro.who.int</a></p>
<p><b>World Health Organization – Saudi Arabia Office</b></p> <p>PO Box 5583 Riyadh 11432, Saudi Arabia</p>	<p>There is currently no WHO Representative for Saudi Arabia. You may contact: <b>Mr Gamal Abu Issa</b> <i>Senior Administrative Assistant</i> Tel: +966-1-464-6630 +966-1-482-1253 +966-1-482-1244 +966-1-488-5301 Fax: +966-1-488-5310 E-mail: <a href="mailto:gamal.abu-issa@who.org.sa">gamal.abu-issa@who.org.sa</a> <a href="mailto:who.registry@who.org.sa">who.registry@who.org.sa</a> <b>Dr Najeeb Al-Shorbaji</b> <i>Regional Adviser, Health Information Support at WHO-EMRO in Cairo, Egypt</i> Tel: +20-2-276-5050 / 5044 Fax: +20-2-276-5424 E-mail: <a href="mailto:shorbajin@emro.who.int">shorbajin@emro.who.int</a></p>
<p><b>World Health Organization – Syria Office</b></p> <p>PO Box 3946 Damascus, Syrian Arab Republic</p>	<p><b>Dr Mohamed Kamel</b> <i>The WHO Representative</i> Tel: +963-11-331-6226 (direct) +963-11-333-9600 / 01 / 02 +963-11-333-1553 +963-11-332-9315 Fax: +963-11-333-0289 E-mail: <a href="mailto:who-syr@scs-net.org">who-syr@scs-net.org</a></p>
<p><b>World Health Organization – Turkey Office</b></p> <p>UN House Birlık Mahallesi 2 - Cadde 11 TR-Cankaya, Ankara Turkey</p>	<p><b>Dr Bekir Metin</b> <i>Liaison Officer</i> Tel: +90-312-454-1081 / 1082 Fax: +90-312-496-1488 E-mail: <a href="mailto:whotur@un.org.tr">whotur@un.org.tr</a> <a href="mailto:whotur@dominet.in.com.tr">whotur@dominet.in.com.tr</a></p>

## ANNEX 6 : List of WHO Guidelines on Communicable Diseases

FACT SHEETS	
Title	Publication No./Date
Anthrax	Fact Sheet No 264 October 2001 <a href="http://www.who.int/inf-fs/en/fact264.html">http://www.who.int/inf-fs/en/fact264.html</a>
Cholera	Fact Sheet No 107 Revised March 2000 <a href="http://www.who.int/inf-fs/en/fact107.html">http://www.who.int/inf-fs/en/fact107.html</a>
Crimean-Congo Haemorrhagic Fever	Fact Sheet No 208 December 1998 <a href="http://www.who.int/inf-fs/en/fact208.html">http://www.who.int/inf-fs/en/fact208.html</a>
Dengue and Dengue Haemorrhagic Fever	Fact Sheet No 117 Revised November 1998 <a href="http://www.who.int/inf-fs/en/fact117.html">http://www.who.int/inf-fs/en/fact117.html</a>
Diphtheria	Fact Sheet No 89 Revised September 2000 <a href="http://www.who.int/inf-fs/en/fact089.html">http://www.who.int/inf-fs/en/fact089.html</a>
Epidemic Dysentery	Fact Sheet No 108 Revised October 1996 <a href="http://www.who.int/inf-fs/en/fact108.html">http://www.who.int/inf-fs/en/fact108.html</a>
Escherichia coli O157:H7	Fact sheet No 103 Revised December 2000 <a href="http://www.who.int/inf-fs/en/fact103.html">http://www.who.int/inf-fs/en/fact103.html</a>
Food Safety and Foodborne Illness	Fact Sheet No 237 revised January 2002 <a href="http://www.who.int/inf-fs/en/fact237.html">http://www.who.int/inf-fs/en/fact237.html</a>
Hepatitis B	Fact Sheet WHO/204 Revised October 2000 <a href="http://www.who.int/inf-fs/en/fact204.html">http://www.who.int/inf-fs/en/fact204.html</a>
Hepatitis C	Fact Sheet No 164 Revised October 2000 <a href="http://www.who.int/inf-fs/en/fact164.html">http://www.who.int/inf-fs/en/fact164.html</a>
Influenza	Fact Sheet No 211 February 1999 <a href="http://www.who.int/inf-fs/en/fact211.html">http://www.who.int/inf-fs/en/fact211.html</a>
Influenza A(H5N1)	Fact Sheet No 188 January 1998 <a href="http://www.who.int/inf-fs/en/fact188.html">http://www.who.int/inf-fs/en/fact188.html</a>
Injection Safety: Background	Fact Sheet No 231 Revised April 2002 <a href="http://www.who.int/inf-fs/en/fact231.html">http://www.who.int/inf-fs/en/fact231.html</a>
Injection Safety: Facts & Figures	Fact Sheet No 232 October 1999 <a href="http://www.who.int/inf-fs/en/fact232.html">http://www.who.int/inf-fs/en/fact232.html</a>
Injection Safety: a Glossary	Fact Sheet No 233 October 1999 <a href="http://www.who.int/inf-fs/en/fact233.html">http://www.who.int/inf-fs/en/fact233.html</a>
Injection Safety: Questions & Safety	Fact Sheet No 234 October 1999 <a href="http://www.who.int/inf-fs/en/fact234.html">http://www.who.int/inf-fs/en/fact234.html</a>
Malaria	Fact Sheet no 94 <a href="http://www.who.int/inf-fs/en/fact094.html">http://www.who.int/inf-fs/en/fact094.html</a>
Plague	Fact Sheet No 267 January 2002 <a href="http://www.who.int/inf-fs/en/fact267.html">http://www.who.int/inf-fs/en/fact267.html</a>
Poliomyelitis	Fact Sheet No 114 Revised August 2002 <a href="http://www.who.int/mediacentre/factsheets/fs114/en/">http://www.who.int/mediacentre/factsheets/fs114/en/</a>
Rabies	Fact Sheet No 99 Revised June 2000 <a href="http://www.who.int/inf-fs/en/fact099.html">http://www.who.int/inf-fs/en/fact099.html</a>
Salmonella	Fact Sheet No 139 January 1997 <a href="http://www.who.int/inf-fs/en/fact139.html">http://www.who.int/inf-fs/en/fact139.html</a>

Smallpox	October 2001 <a href="http://www.who.int/emc/diseases/smallpox/factsheet.html">http://www.who.int/emc/diseases/smallpox/factsheet.html</a>
Tuberculosis	Fact Sheet no 104 Revised August 2002 <a href="http://www.who.int/mediacentre/factsheets/who104/en/">http://www.who.int/mediacentre/factsheets/who104/en/</a>
Typhoid Fever	Fact sheet No 149 March 1997 <a href="http://www.who.int/inf-fs/en/fact149.html">http://www.who.int/inf-fs/en/fact149.html</a>
The World Health Organization	Fact Sheet No 126 August 1996 <a href="http://www.who.int/inf-fs/en/fact126.html">http://www.who.int/inf-fs/en/fact126.html</a>
<b>GUIDELINES/PUBLICATIONS/REPORTS</b>	
Protocol for the Assessment of National Communicable Disease Surveillance and Response Systems. Guidelines for Assessment Teams <a href="http://www.who.int/emc-documents/surveillance/whocdscsr20012c.html">http://www.who.int/emc-documents/surveillance/whocdscsr20012c.html</a>	WHO/CDS/CSR/ISR/2001.2 English only
Strengthening Implementation of the Global Strategy for Dengue Fever/Dengue Haemorrhagic Fever Prevention and Control <a href="http://www.who.int/emc-documents/dengue/whocdsdenic20001c.html">http://www.who.int/emc-documents/dengue/whocdsdenic20001c.html</a>	WHO/CDS/(DEN)/IC/2000.1 English only
WHO Report on Global Surveillance of Epidemic-prone Infectious Diseases <a href="http://www.who.int/emc-documents/surveillance/whocdscsr20001c.html">http://www.who.int/emc-documents/surveillance/whocdscsr20001c.html</a>	WHO/CDS/CSR/ISR/2000.1 English only
Guidelines for the collection of clinical specimens during field investigation of outbreaks <a href="http://www.who.int/emc-documents/surveillance/docs/whocdscsredc2004.pdf">http://www.who.int/emc-documents/surveillance/docs/whocdscsredc2004.pdf</a>	WHO/EDC/2000.4 English only
Hepatitis A <a href="http://www.who.int/emc-documents/hepatitis/whocdscsredc20007c.html">http://www.who.int/emc-documents/hepatitis/whocdscsredc20007c.html</a>	WHO/CDS/EDC/2000.7 English only
WHO Guidelines for Epidemic Preparedness and Response to Measles Outbreaks <a href="http://www.who.int/emc-documents/measles/whocdscsr200091c.html">http://www.who.int/emc-documents/measles/whocdscsr200091c.html</a>	WHO/CDS/CSR/ISR/99.1 English only
Influenza Pandemic Preparedness Plan. The Role of WHO and Guidelines for National and Regional Planning <a href="http://www.who.int/emc-documents/influenza/whocdscsredc991c.html">http://www.who.int/emc-documents/influenza/whocdscsredc991c.html</a>	WHO/CDS/CSR/EDC/99.1 English only
Plague Manual: Epidemiology, Distribution, Surveillance and Control <a href="http://www.who.int/emc-documents/plague/whocdscsredc992c.html">http://www.who.int/emc-documents/plague/whocdscsredc992c.html</a>	WHO/CDS/CSR/EDC/99.2 English and French
Laboratory methods for the diagnosis of meningitis caused by Neisseria meningitidis, Streptococcus pneumoniae, and Haemophilus influenzae <a href="http://www.who.int/emc-documents/meningitis/whocdscsredc997c.html">http://www.who.int/emc-documents/meningitis/whocdscsredc997c.html</a>	WHO/CDS/CSR/EDC/99.7 English and French
Laboratory methods for the diagnosis of epidemic dysentery and cholera, 1999. <a href="http://www.who.int/emc/diseases/cholera.html">http://www.who.int/emc/diseases/cholera.html</a>	WHO/CDS/CSR/EDC/99.8 English and French
Infection Control for Viral Haemorrhagic Fevers in the African Health Care Setting <a href="http://www.who.int/emc-documents/haem_fevers/whoemces982c.html">http://www.who.int/emc-documents/haem_fevers/whoemces982c.html</a>	WHO/EMC/ESR/98.2 English and French
Control of epidemic meningococcal disease. WHO practical guidelines 2 <sup>nd</sup> edition <a href="http://www.who.int/emc-documents/meningitis/whoemcbac983c.html">http://www.who.int/emc-documents/meningitis/whoemcbac983c.html</a>	WHO/EMC/BAC/98.3 English and French
Guidelines for the Surveillance and Control of Anthrax in Human and Animals. 3 <sup>rd</sup> edition	WHO/EMC/ZDI/98.6
Cholera and other epidemic diarrhoeal diseases control – Technical cards on environmental sanitation, 1997 <a href="http://www.who.int/emc-documents/cholera/whoemcdis976c.html">http://www.who.int/emc-documents/cholera/whoemcdis976c.html</a>	WHO/EMC/DIS/97.6
Epidemic diarrhoeal disease preparedness and response – Training and practice, 1998 (Participant's manual) <a href="http://www.who.int/emc-documents/cholera/whoemcdis973c.html">http://www.who.int/emc-documents/cholera/whoemcdis973c.html</a>	WHO/EMC/97.3 Rev.1 English, French and Spanish
Epidemic diarrhoeal disease preparedness and response – Training and practice, 1998 (Facilitator's guide) <a href="http://www.who.int/emc-documents/cholera/whoemcdis974c.html">http://www.who.int/emc-documents/cholera/whoemcdis974c.html</a>	WHO/EMC/97.4 Rev.1 English, French and Spanish

Dengue haemorrhagic fever: Diagnosis, treatment, prevention and control. 2 <sup>nd</sup> edition <a href="http://www.who.int/emc/diseases/ebola/Denguepublication/index.html">http://www.who.int/emc/diseases/ebola/Denguepublication/index.html</a>	1997 English only
Guidelines for the control of epidemics due to <i>Shigella dysenteriae</i> type 1 <a href="http://www.who.int/emc-documents/cholera/whocdr954c.html">http://www.who.int/emc-documents/cholera/whocdr954c.html</a>	WHO/CDR/95.4 English only
Guidelines for cholera control. Geneva, WHO, 1993 <a href="http://www.who.int/emc/diseases/cholera.htm">http://www.who.int/emc/diseases/cholera.htm</a>	1993 English and French
<b><u>VIDEOS</u></b>	
Protecting ourselves and our communities from cholera (41 min) <a href="http://www.who.int/emc/diseases/cholera/videos.html">http://www.who.int/emc/diseases/cholera/videos.html</a>	2000 English and French
<b><u>WEB SITES</u></b>	
WHO/EMRO Roll Back Malaria website	<a href="http://208.48.48.190/rbm/Index.htm">http://208.48.48.190/rbm/Index.htm</a>
WHO/EURO Computerized Information System for Infectious Diseases (CISID) website	<a href="http://cisid.who.dk/">http://cisid.who.dk/</a>

## ANNEX 7 : Immunization Schedule for Iraq

<b>VACCINE</b>	<b>SCHEDULE</b>
BCG (tuberculosis vaccine)	Birth
DTP (diphtheria, tetanus, pertussis vaccine)	2, 4, 6, 18 months, 4-6 years
OPV (oral polio vaccine)	Birth, 2, 4, 6, 18 months, 4-6 years
Hep B (hepatitis B vaccine)	Birth, 2, 6 months
MCV (measles-containing vaccine)	9 months
MMR (measles-mumps-rubella vaccine)	15 months, school entry
DT (diphtheria and tetanus toxoids for paediatric use)	< 5 years
Td (tetanus toxoid and reduced amount of diphtheria toxoid for adolescent and adult use)	7 years
TT (tetanus toxoid)	Child Bearing Age Women (CBAW) – 5 doses

## ANNEX 8 : Map of Iraq



**ANNEX 9 : Population of Iraq, 2002**

<b>South and Centre of Iraq</b>				
<b>Governorate</b>	<b>Total</b>	<b>% of Grand Total</b>	<b>Children =&gt;1 and Adults</b>	<b>Children &lt;1</b>
<i>Baghdad</i>	6,408,160	24.00%	6,237,927	170,233
<i>Ninevah</i>	2,486,466	9.31%	2,420,618	65,848
<i>Basrah</i>	1,954,698	7.32%	1,895,456	59,242
<i>Thi-Qar</i>	1,519,490	5.69%	1,473,383	46,107
<i>Babil</i>	1,390,695	5.21%	1,356,046	34,649
<i>Diala</i>	1,254,391	4.70%	1,222,654	31,737
<i>Anbar</i>	1,254,241	4.70%	1,217,588	36,653
<i>Salah Al-Din</i>	961,577	3.60%	934,910	26,667
<i>Najaf</i>	940,966	3.52%	913,831	27,135
<i>Wasit</i>	927,166	3.47%	903,606	23,560
<i>Qadisiyah</i>	904,455	3.39%	880,329	24,126
<i>Ta'meem</i>	869,246	3.26%	847,543	21,703
<i>Missan</i>	836,639	3.13%	805,908	30,731
<i>Kerbala</i>	733,121	2.75%	714,023	19,098
<i>Muthanna</i>	549,259	2.06%	533,178	16,081
<b>Sub-Total</b>	<b>22,990,570</b>	<b>86.11%</b>	<b>22,357,000</b>	<b>633,570</b>
<b>North of Iraq</b>				
<b>Governorate</b>	<b>Total</b>	<b>% of Grand Total</b>	<b>Children =&gt;1 and Adults</b>	<b>Children &lt;1</b>
<i>Suleimaniyah</i>	1,584,683	5.94%	1,561,612	23,071
<i>Erbil</i>	1,316,162	4.93%	1,292,770	23,392
<i>Dohouk</i>	807,005	3.02%	788,759	18,246
<b>Sub-Total</b>	<b>3,707,850</b>	<b>13.89%</b>	<b>3,643,141</b>	<b>64,709</b>
<b>Grand Total</b>	<b>26,698,420</b>	<b>100.00%</b>	<b>26,000,141</b>	<b>698,279</b>

Source: Ministry of Health, Iraq

**ANNEX 10 : Basic Health Indicators in Iraq**

<b>Total population of Iraq</b>	26,698,420 (2002)
<b>Population under 5 years old</b>	3,600,000 (2002, approx.)
<b>Life Expectancy at Birth (in years)</b>	58.7 (Men) 62.9 (Women) (2001)
<b>Infant Mortality Rate</b>	105 deaths per 1,000 live births (2000)
<b>Mortality Rate for Children &lt;5 years old</b>	133 deaths per 1,000 live births (2001)
<b>Maternal Mortality Ratio</b>	370 deaths per 100,000 live births (1995, est.)

## ANNEX 11: Data on Communicable Diseases in Neighbouring Countries

### ISLAMIC REPUBLIC of IRAN

#### CHOLERA

Number of cases reported	
<b>2001:</b> 105 cases; 1 death <b>2000:</b> 345 cases; 3 deaths <b>1999:</b> 1,369 cases; 21 deaths <b>1998:</b> 270 cases; 0 deaths <b>1997:</b> 1,106 cases; 9 deaths <b>1996:</b> no cases reported <b>1995:</b> 2,177 cases; 59 deaths	

#### DIPHTHERIA

Number of cases reported	DTP3 vaccination coverage
<b>2001:</b> 15 cases <b>2000:</b> 18 cases <b>1999:</b> 13 cases <b>1998:</b> 13 cases <b>1997:</b> 30 cases <b>1990:</b> 373 cases <b>1980:</b> 139 cases	<b>2001:</b> 95% (official country est.); 95% (WHO-UNICEF est.) <b>2000:</b> 100% (official country est.) <b>1999:</b> 100% (official country est.) <b>1998:</b> 100% (official country est.) <b>1997:</b> 100% (official country est.) <b>1990:</b> 91% (official country est.) <b>1980:</b> 32% (official country est.)

#### HIV/AIDS

Number of cases reported	
<b>Estimated number of people living with HIV/AIDS, end 2001:</b> <b>Adults and children:</b> 20,000 <b>Adults (15-49):</b> 20,000 <b>Adult rate(%):</b> <0.1 <b>Women (15-49):</b> 5,000 <b>Children (0-15):</b> <200 <b>Estimated number of deaths due to AIDS, 2001:</b> 290	<p>The HIV epidemic in the Islamic Republic of Iran appears to be accelerating at an alarming trend. Injecting drug use drives the epidemic in the country: the data on HIV seroprevalence among IDUs shows the highest rates of infection compared to all other tested groups.</p> <p>There has also been a significant increase of total numbers of reported STD cases in the country in recent years (especially candidiasis, trichomoniasis, chlamydia and gonorrhoea).</p>

#### MALARIA

Number of cases reported	
<b>2001:</b> 19,303 cases (8,924 autochthonous) <b>2000:</b> 19,716 cases (12,294 autochthonous) <b>1999:</b> 23,110 cases (most autochthonous) <b>1998:</b> 32,951 cases (most autochthonous) <b>1997:</b> 38,684 cases	<p>The overall incidence of malaria, especially falciparum malaria, has decreased in recent years due to a strong control programme. However, both vivax malaria and falciparum malaria are still present in the country. Areas with high proportion of falciparum malaria are located in the south-east of the country (Sistan-Balochistan and parts of Hormozgan and Kerman).</p>

## ISLAMIC REPUBLIC of IRAN

### MEASLES

Number of cases reported	MCV vaccination coverage
<b>2001:</b> 9,582 cases	<b>2001:</b> 96% (official country est.); 96% (WHO-UNICEF est.)
<b>2000:</b> 11,874 cases	<b>2000:</b> 100% (official country est.)
<b>1999:</b> 4,137 cases	<b>1999:</b> 99% (official country est.)
<b>1998:</b> 2,869 cases	<b>1998:</b> 100% (official country est.)
<b>1997:</b> 3,901 cases	<b>1997:</b> 95% (official country est.)
<b>1990:</b> 5,341 cases	<b>1990:</b> 85% (official country est.)
<b>1980:</b> 31,130 cases	<b>1980:</b> 39% (official country est.)

### PERTUSSIS (whooping cough)

Number of cases reported	DTP3 vaccination coverage
<b>2001:</b> 112 cases	<b>2001:</b> 95% (official country est.); 95% (WHO-UNICEF est.)
<b>2000:</b> 94 cases	<b>2000:</b> 100% (official country est.)
<b>1999:</b> 24 cases	<b>1999:</b> 100% (official country est.)
<b>1998:</b> 20 cases	<b>1998:</b> 100% (official country est.)
<b>1997:</b> 50 cases	<b>1997:</b> 100% (official country est.)
<b>1990:</b> 1,230 cases	<b>1990:</b> 91% (official country est.)
<b>1980:</b> 20,395 cases	<b>1980:</b> 32% (official country est.)

### POLIOMYELITIS

Number of cases reported	Pol3 vaccination coverage
<b>2002:</b> 0 wild-virus confirmed polio cases	<b>2001:</b> 95% (official country est.); 95% (WHO-UNICEF est.)
<b>2001:</b> 0 wild-virus confirmed polio cases	<b>2000:</b> 100% (official country est.)
<b>2000:</b> 3 wild-virus confirmed polio cases	<b>1999:</b> 100% (official country est.)
<b>1999:</b> 3 wild-virus confirmed polio cases	<b>1998:</b> 100% (official country est.)
<b>1998:</b> 3 wild-virus confirmed polio cases	<b>1997:</b> 100% (official country est.)
<b>1997:</b> 13 wild-virus confirmed polio cases	<b>1990:</b> 90% (official country est.)
<b>1996:</b> 12 wild-virus confirmed polio cases	<b>1980:</b> 38% (official country est.)

### TUBERCULOSIS

Number of cases reported	BCG vaccination coverage
<b>Estimated number of new cases (2000):</b> 37,241	<b>2001:</b> 92% (official country est.); 93% (WHO-UNICEF est.)
<b>Estimated number of new cases of smear positive TB (2000):</b> 16,759	<b>2000:</b> 99% (official country est.)
<b>Estimated incidence of TB (2000):</b> 52.9/100,000/year	<b>1999:</b> 99% (official country est.)
	<b>1998:</b> 99% (official country est.)
	<b>1997:</b> 91% (official country est.)
	<b>1990:</b> 95% (official country est.)
	<b>1980:</b> 7% (official country est.)

## JORDAN

### CHOLERA

Number of cases reported	
2001: 0 cases	
2000: 0 cases	
1999: 0 cases	
1998: 0 cases	
1997: 0 cases	
1996: 0 cases	
1995: 0 cases	

### DIPHTHERIA

Number of cases reported	DTP3 vaccination coverage
2001: 0 cases	2001: 99% (official country est.); 99% (WHO-UNICEF est.)
2000: 0 cases	2000: 91% (official country est.)
1999: 0 cases	1999: 85% (official country est.)
1998: 0 cases	1998: 91% (official country est.)
1997: 0 cases	1997: 93% (official country est.)
1990: 0 cases	1990: 92% (official country est.)
1980: 5 cases	1980: 30% (official country est.)

### HIV/AIDS

Number of cases reported	
<p><b>Estimated number of people living with HIV/AIDS, end 2001:</b></p> <p>Adults and children: &lt;1,000            Adults (15-49): &lt;1,000      Adult rate(%): &lt;0.1            Women (15-49): 150            Children (0-15): NA</p> <p><b>Estimated number of deaths due to AIDS, 2001: NA</b></p>	<p>HIV seroprevalence among blood donors remains still below 0.03% in Jordan.</p> <p>There is little HIV information about high-risk groups in Jordan. HIV screening is done when possible on a very few number of sex workers, prostitutes and men who have sex with men.</p>

### MALARIA

Number of cases reported	
<p>2001: 124 cases (0 autochthonous)</p> <p>2000: 158 cases (0 autochthonous)</p> <p>1999: 133 cases (0 autochthonous)</p> <p>1998: 122 cases (0 autochthonous)</p> <p>NB: all imported cases</p>	<p>Transmission of malaria was interrupted in Jordan in 1970, after which, however, two episodes of renewed transmission of <i>P. vivax</i> occurred, in 1990 and 1996, originating from cases imported from abroad. Malaria-receptive areas are located in the North-West adjacent to the Jordan valley and Dead Sea.</p> <p>All malaria cases since 1997 have been imported cases.</p>

## JORDAN

### MEASLES

Number of cases reported	MCV vaccination coverage
2001: 61 cases	2001: 99% (official country est.); 99% (WHO-UNICEF est.)
2000: 32 cases	2000: 94% (official country est.)
1999: 115 cases	1999: 83% (official country est.)
1998: 428 cases	1998: 86% (official country est.)
1997: 7,026 cases	1997: 95% (official country est.)
1990: 290 cases	1990: 87% (official country est.)
1980: 552 cases	1980: 29% (official country est.)

### PERTUSSIS (whooping cough)

Number of cases reported	DTP3 vaccination coverage
2001: 3 cases	2001: 99% (official country est.); 99% (WHO-UNICEF est.)
2000: 5 cases	2000: 91% (official country est.)
1999: 1 cases	1999: 85% (official country est.)
1998: 3 cases	1998: 91% (official country est.)
1997: 4 cases	1997: 93% (official country est.)
1990: 4 cases	1990: 92% (official country est.)
1980: 437 cases	1980: 30% (official country est.)

### POLIOMYELITIS

Number of cases reported	Pol3 vaccination coverage
2002: 0 wild-virus confirmed polio cases	2001: 97% (official country est.); 97% (WHO-UNICEF est.)
2001: 0 wild-virus confirmed polio cases	2000: 94% (official country est.)
2000: 0 wild-virus confirmed polio cases	1999: 85% (official country est.)
1999: 0 wild-virus confirmed polio cases	1998: 91% (official country est.)
1998: 0 wild-virus confirmed polio cases	1997: 98% (official country est.)
1997: 0 wild-virus confirmed polio cases	1990: 92% (official country est.)
1996: 0 wild-virus confirmed polio cases	1980: 32% (official country est.)

### TUBERCULOSIS

Number of cases reported	BCG vaccination coverage
Estimated number of new cases (2000): 491	2001: NA
Estimated number of new cases of smear positive TB (2000): 221	2000: NA
Estimated incidence of TB (2000): 9.9/100,000/year	1999: NA
	1998: NA
	1997: NA
	1990: NA
	1980: 32% (official country est.)

## KUWAIT

### CHOLERA

Number of cases reported	
<b>2001:</b> 0 cases <b>2000:</b> 0 cases <b>1999:</b> 0 cases <b>1998:</b> 0 cases <b>1997:</b> 0 cases <b>1996:</b> 0 cases <b>1995:</b> 0 cases	

### DIPHTHERIA

Number of cases reported	DTP3 vaccination coverage
<b>2001:</b> NA <b>2000:</b> 0 cases <b>1999:</b> 0 cases <b>1998:</b> 0 cases <b>1997:</b> 0 cases <b>1990:</b> 0 cases <b>1980:</b> 1 case	<b>2001:</b> 98% (WHO-UNICEF est.) <b>2000:</b> 98% (official country est.) <b>1999:</b> 94% (official country est.) <b>1998:</b> 95% (official country est.) <b>1997:</b> 96% (official country est.) <b>1990:</b> NA <b>1980:</b> 67% (official country est.)

### HIV/AIDS

Number of cases reported	
<b>Estimated number of people living with HIV/AIDS, end 2001:</b>  <b>Adults and children:</b> NA <b>Adults (15-49):</b> NA <b>Adult rate(%):</b> NA <b>Women (15-49):</b> NA <b>Children (0-15):</b> NA  <b>Estimated number of deaths due to AIDS, 2001:</b> NA	<p>Since 1992 between 500 to 800 pregnant women are tested yearly in Kuwait. No evidence of HIV infection among this group has been found.</p> <p>In 2000, none of the 193 IV drug user tested, and none of the 1503 prisoner tested was found HIV positive.</p> <p>However, a rise in the number of STD cases reporting at the STD clinics has been observed in recent years.</p>

### MALARIA

Number of cases reported	
<b>2001:</b> 233 cases (0 autochthonous) <b>2000:</b> 249 cases (0 autochthonous) <b>1999:</b> 349 cases (0 autochthonous) <b>1998:</b> 746 cases (0 autochthonous) NB: all imported cases	<p>Kuwait was long considered an Anopheles-free country. However, discovery of the vector in 1981-82 indicates that the country is receptive. Even if currently there is no malaria transmission in the country, Kuwait receives several hundreds of imported cases every year (mostly from the Indian subcontinent), and therefore the threat of introduction of malaria is real.</p>

## KUWAIT

### MEASLES

Number of cases reported	MCV vaccination coverage
2001: NA	2001: 99% (WHO-UNICEF est.)
2000: 6 cases	2000: 99% (official country est.)
1999: 13 cases	1999: 96% (official country est.)
1998: 90 cases	1998: 99% (official country est.)
1997: 26 cases	1997: 95% (official country est.)
1990: 71 cases	1990: NA
1980: 1,382 cases	1980: 48% (official country est.)

### PERTUSSIS (whooping cough)

Number of cases reported	DTP3 vaccination coverage
2001: NA	2001: 98% (WHO-UNICEF est.)
2000: 43 cases	2000: 98% (official country est.)
1999: 7 cases	1999: 94% (official country est.)
1998: 20 cases	1998: 95% (official country est.)
1997: 137 cases	1997: 96% (official country est.)
1990: 25 cases	1990: NA
1980: 69 cases	1980: 67% (official country est.)

### POLIOMYELITIS

Number of cases reported	Pol3 vaccination coverage
2002: 0 wild-virus confirmed polio cases	2001: 94% (WHO-UNICEF est.)
2001: 0 wild-virus confirmed polio cases	2000: 94% (official country est.)
2000: 0 wild-virus confirmed polio cases	1999: 94% (official country est.)
1999: 0 wild-virus confirmed polio cases	1998: 94% (official country est.)
1998: 0 wild-virus confirmed polio cases	1997: 100% (official country est.)
1997: 0 wild-virus confirmed polio cases	1990: NA
1996: 0 wild-virus confirmed polio cases	1980: 70% (official country est.)

### TUBERCULOSIS

Number of cases reported	BCG vaccination coverage
Estimated number of new cases (2000): 589	2001: NA
Estimated number of new cases of smear positive TB (2000): 264	2000: NA
Estimated incidence of TB (2000): 30.7/100,000/year	1999: NA
	1998: NA
	1997: NA
	1990: NA
	1980: 2% (official country est.)

## SAUDI ARABIA

### CHOLERA

Number of cases reported	
<b>2001:</b> 0 cases <b>2000:</b> 0 cases <b>1999:</b> 0 cases <b>1998:</b> 0 cases <b>1997:</b> 0 cases <b>1996:</b> 0 cases <b>1995:</b> 0 cases	

### DIPHTHERIA

Number of cases reported	DTP3 vaccination coverage
<b>2001:</b> 0 cases <b>2000:</b> NA <b>1999:</b> 0 cases <b>1998:</b> 0 cases <b>1997:</b> 1 case <b>1990:</b> 1 case <b>1980:</b> 99 cases	<b>2001:</b> 97% (official country est.); 97% (WHO-UNICEF est.) <b>2000:</b> NA <b>1999:</b> 93% (official country est.) <b>1998:</b> 94% (official country est.) <b>1997:</b> 92% (official country est.) <b>1990:</b> 92% (official country est.) <b>1980:</b> 41% (official country est.)

### HIV/AIDS

Number of cases reported	
<b>Estimated number of people living with HIV/AIDS, end 2001:</b>  <b>Adults and children:</b> NA <b>Adults (15-49):</b> NA <b>Adult rate(%):</b> NA <b>Women (15-49):</b> NA <b>Children (0-15):</b> NA  <b>Estimated number of deaths due to AIDS, 2001:</b> NA	<p>There is limited information for HIV/AIDS/STD in Saudi Arabia. The first case of AIDS in the country was reported in 1984, and the cumulative number of AIDS cases until the end of 2000 is 436. More than 70% of these cases were detected after 1996. Two third of the cases are among male expatriates, who are usually returned to their homeland.</p> <p>Main mode of transmission is heterosexual, mother-to-child-transmission and drug addiction also reported. No data on HIV testing is available.</p>

### MALARIA

Number of cases reported	
<b>2001:</b> 3,074 cases (1,614 autochthonous) <b>2000:</b> 6,608 cases (4,736 autochthonous) <b>1999:</b> 13,166 cases (10,099 autochthonous) <b>1998:</b> 40,796 cases (36,139 autochthonous) <b>1997:</b> 20,631 cases	<p>Malaria was eliminated from the eastern, central and northern areas of the country at the beginning of the 1970s. It is still endemic in parts of the south-western areas of Saudi Arabia, at altitudes below 2000 meters. Here <i>P. falciparum</i> is the prevailing parasite, and <i>An. arabiensis</i> the main vector. The most high-risk area is Jizan, where existence of malaria is perpetuated by continuous importation from Yemen.</p>

## SAUDI ARABIA

### MEASLES

Number of cases reported	MCV vaccination coverage
<b>2001:</b> 155 cases	<b>2001:</b> 94% (official country est.); 94% (WHO-UNICEF est.)
<b>2000:</b> NA	<b>2000:</b> NA
<b>1999:</b> 2,815 cases	<b>1999:</b> 92% (official country est.)
<b>1998:</b> 5,519 cases	<b>1998:</b> 93% (official country est.)
<b>1997:</b> 3,978 cases	<b>1997:</b> 92% (official country est.)
<b>1990:</b> 5,439 cases	<b>1990:</b> 88% (official country est.)
<b>1980:</b> 46,115 cases	<b>1980:</b> 8% (official country est.)

### PERTUSSIS (whooping cough)

Number of cases reported	DTP3 vaccination coverage
<b>2001:</b> 35 cases	<b>2001:</b> 97% (official country est.); 97% (WHO-UNICEF est.)
<b>2000:</b> NA	<b>2000:</b> NA
<b>1999:</b> 11 cases	<b>1999:</b> 93% (official country est.)
<b>1998:</b> 85 cases	<b>1998:</b> 94% (official country est.)
<b>1997:</b> 80 cases	<b>1997:</b> 92% (official country est.)
<b>1990:</b> 112 cases	<b>1990:</b> 92% (official country est.)
<b>1980:</b> 9,815 cases	<b>1980:</b> 41% (official country est.)

### POLIOMYELITIS

Number of cases reported	Pol3 vaccination coverage
<b>2002:</b> 0 wild-virus confirmed polio cases	<b>2001:</b> 97% (official country est.); 97% (WHO-UNICEF est.)
<b>2001:</b> 0 wild-virus confirmed polio cases	<b>2000:</b> NA
<b>2000:</b> 0 wild-virus confirmed polio cases	<b>1999:</b> 93% (official country est.)
<b>1999:</b> 0 wild-virus confirmed polio cases	<b>1998:</b> 94% (official country est.)
<b>1998:</b> 1 wild-virus confirmed polio case	<b>1997:</b> 92% (official country est.)
<b>1997:</b> 0 wild-virus confirmed polio cases	<b>1990:</b> 92% (official country est.)
<b>1996:</b> 0 wild-virus confirmed polio cases	<b>1980:</b> 50% (official country est.)

### TUBERCULOSIS

Number of cases reported	BCG vaccination coverage
<b>Estimated number of new cases (2000):</b> 9,090	<b>2001:</b> 95% (official country est.); 94% (WHO-UNICEF est.)
<b>Estimated number of new cases of smear positive TB (2000):</b> 4,090	<b>2000:</b> NA
<b>Estimated incidence of TB (2000):</b> 44.6/100,000/year	<b>1999:</b> 92% (official country est.)
	<b>1998:</b> 92% (official country est.)
	<b>1997:</b> 91% (official country est.)
	<b>1990:</b> 90% (official country est.)
	<b>1980:</b> 33% (official country est.)

## SYRIAN ARAB REPUBLIC

### CHOLERA

Number of cases reported	
<b>2001:</b> 0 cases <b>2000:</b> 0 cases <b>1999:</b> 0 cases <b>1998:</b> 0 cases <b>1997:</b> 0 cases <b>1996:</b> 0 cases <b>1995:</b> 0 cases	

### DIPHTHERIA

Number of cases reported	DTP3 vaccination coverage
<b>2001:</b> 1 case <b>2000:</b> 0 cases <b>1999:</b> 1 case <b>1998:</b> 5 cases <b>1997:</b> 59 cases <b>1990:</b> 80 cases <b>1980:</b> 366 cases	<b>2001:</b> 95% (official country est.); 92% (WHO-UNICEF est.) <b>2000:</b> 97% (official country est.) <b>1999:</b> 97% (official country est.) <b>1998:</b> 97% (official country est.) <b>1997:</b> 95% (official country est.) <b>1990:</b> 90% (official country est.) <b>1980:</b> 13% (official country est.)

### HIV/AIDS

<b>Estimated number of people living with HIV/AIDS, end 2001:</b>  <b>Adults and children:</b> NA <b>Adults (15-49):</b> NA <b>Adult rate(%):</b> NA <b>Women (15-49):</b> NA <b>Children (0-15):</b> NA  <b>Estimated number of deaths due to AIDS, 2001:</b> NA	<p>The first case of AIDS was reported in 1987. Around 250,000 HIV tests are performed annually in the country, a large part of these mandatory. No specific pattern for the spread of HIV/AIDS is apparent: results of HIV testing of the various low and higher risk groups across the years are consistently below 0.5%. In a recent study (2001) among pregnant women and women attending gynaecology services in urban and rural areas of Damascus, there was no evidence of HIV infection.</p>
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### MALARIA

Number of cases reported	
<b>2001:</b> 78 cases (62 autochthonous) <b>2000:</b> 42 cases (6 autochthonous) <b>1999:</b> 43 cases (5 autochthonous) <b>1998:</b> 60 cases (14 autochthonous) <b>1997:</b> 130 cases	<p>Up to the 1950s, falciparum and vivax malaria were endemic throughout the country, except deserts and mountains above 1100m. Transmission of <i>P. falciparum</i> was interrupted in the 1960s, while transmission of <i>P. vivax</i> still persists today in the north-western and in the north-eastern part of the country, due to movements of population across the border with Turkey and Iraq. Cases of imported malaria have also been registered in recent years.</p>

## SYRIAN ARAB REPUBLIC

### MEASLES

Number of cases reported	MCV vaccination coverage
<b>2001:</b> 290 cases	<b>2001:</b> 93% (official country est.); 93% (WHO-UNICEF est.)
<b>2000:</b> 146 cases	<b>2000:</b> 94% (official country est.)
<b>1999:</b> 3 cases	<b>1999:</b> 97% (official country est.)
<b>1998:</b> 5,400 cases	<b>1998:</b> 97% (official country est.)
<b>1997:</b> 6,850 cases	<b>1997:</b> 93% (official country est.)
<b>1990:</b> 535 cases	<b>1990:</b> 87% (official country est.)
<b>1980:</b> 1,478 cases	<b>1980:</b> 13% (official country est.)

### PERTUSSIS (whooping cough)

Number of cases reported	DTP3 vaccination coverage
<b>2001:</b> 240 cases	<b>2001:</b> 95% (official country est.); 92% (WHO-UNICEF est.)
<b>2000:</b> 124 cases	<b>2000:</b> 97% (official country est.)
<b>1999:</b> 183 cases	<b>1999:</b> 97% (official country est.)
<b>1998:</b> 313 cases	<b>1998:</b> 97% (official country est.)
<b>1997:</b> 925 cases	<b>1997:</b> 95% (official country est.)
<b>1990:</b> 39 cases	<b>1990:</b> 90% (official country est.)
<b>1980:</b> 430 cases	<b>1980:</b> 13% (official country est.)

### POLIOMYELITIS

Number of cases reported	Pol3 vaccination coverage
<b>2002:</b> 0 wild-virus confirmed polio cases	<b>2001:</b> 95% (official country est.); 92% (WHO-UNICEF est.)
<b>2001:</b> 0 wild-virus confirmed polio cases	<b>2000:</b> 97% (official country est.)
<b>2000:</b> 0 wild-virus confirmed polio cases	<b>1999:</b> 97% (official country est.)
<b>1999:</b> 1 wild-virus confirmed polio case	<b>1998:</b> 97% (official country est.)
<b>1998:</b> 0 wild-virus confirmed polio cases	<b>1997:</b> 95% (official country est.)
<b>1997:</b> 0 wild-virus confirmed polio cases	<b>1990:</b> 90% (official country est.)
<b>1996:</b> 0 wild-virus confirmed polio cases	<b>1980:</b> 13% (official country est.)

### TUBERCULOSIS

Number of cases reported	BCG vaccination coverage
<b>Estimated number of new cases (2000):</b> 13,768	<b>2001:</b> 100% (official country est.); 99% (WHO-UNICEF est.)
<b>Estimated number of new cases of smear positive TB (2000):</b> 6,195	<b>2000:</b> 100% (official country est.)
<b>Estimated incidence of TB (2000):</b> 85.0/100,000/year	<b>1999:</b> 100% (official country est.)
	<b>1998:</b> 100% (official country est.)
	<b>1997:</b> 100% (official country est.)
	<b>1990:</b> 92% (official country est.)
	<b>1980:</b> 35% (official country est.)

## TURKEY

### CHOLERA

Number of cases reported	
2001: 0 cases	
2000: 0 cases	
1999: 0 cases	
1998: 0 cases	
1997: 0 cases	
1996: 0 cases	
1995: 0 cases	

### DIPHTHERIA

Number of cases reported	DTP3 vaccination coverage
2001: 5 cases	2001: 88% (official country est.); 88% (WHO-UNICEF est.)
2000: 4 cases	2000: 85% (official country est.)
1999: NA	1999: NA
1998: 6 cases	1998: NA
1997: 2 cases	1997: 79% (official country est.); 59% (WHO-UNICEF survey)
1990: 20 cases	1990: 74% (official country est.)
1980: 86 cases	1980: 42% (official country est.)

### HIV/AIDS

<p><b>Estimated number of people living with HIV/AIDS, end 2001:</b>  <b>Adults and children:</b> 3,700  <b>Adults (15-49):</b> NA      <b>Adult rate(%):</b> &lt;0.1%  <b>Women (15-49):</b> NA  <b>Children (0-15):</b> NA</p> <p><b>Estimated number of deaths due to AIDS, 2001:</b> NA</p>	<p>By mid 2001, a cumulative total of 1,245 cases of HIV have been reported, transmitted primarily through sexual routes and intravenous drug use (IDU), even if numbers of cases diagnosed among IDUs are small. HIV testing is mandatory for blood donors, prostitutes and military service conscripts abroad. All diagnosed HIV infections are reported in a national HIV case reporting system.</p>
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### MALARIA

Number of cases reported	
<p>2001: 10,812 cases (10,758 autochthonous)  2000: 11,432 cases (11,381 autochthonous)  1999: 20,963 cases (20,905 autochthonous)  1998: 36,842 cases (36,780 autochthonous)  1997: 35,456 cases (35,376 autochthonous)</p>	<p>Only <i>P. vivax</i> is transmitted in Turkey. Malaria risk exists from March to October, mainly in the south-eastern part of the country, and in Amikova and Çukorova Plain.</p> <p>More than 15 million people, or 23% of the population, reside in areas where malaria remains endemic, and approximately 28 million people, or 44% of the population, live in areas where the risk of outbreaks is high. The reported incidence of malaria in Turkey today represents a significant reduction from numbers reported over the last decade, even if the number of malaria cases is undoubtedly larger than reported, particularly in the south-eastern part of the country.</p>

## TURKEY

### MEASLES

Number of cases reported	MCV vaccination coverage
<b>2001:</b> 30,509 cases	<b>2001:</b> 90% (official country est.); 90% (WHO-UNICEF est.)
<b>2000:</b> 16,244 cases	<b>2000:</b> 86% (official country est.)
<b>1999:</b> NA	<b>1999:</b> NA
<b>1998:</b> 27,120 cases	<b>1998:</b> NA
<b>1997:</b> 22,795 cases	<b>1997:</b> 76% (official country est.); 79% (WHO-UNICEF survey)
<b>1990:</b> 11,372 cases	<b>1990:</b> 67% (official country est.)
<b>1980:</b> 8,618 cases	<b>1980:</b> 27% (official country est.)

### PERTUSSIS (whooping cough)

Number of cases reported	DTP3 vaccination coverage
<b>2001:</b> 182 cases	<b>2001:</b> 88% (official country est.); 88% (WHO-UNICEF est.)
<b>2000:</b> 510 cases	<b>2000:</b> 85% (official country est.)
<b>1999:</b> NA	<b>1999:</b> NA
<b>1998:</b> 429 cases	<b>1998:</b> NA
<b>1997:</b> 694 cases	<b>1997:</b> 79% (official country est.); 59% (WHO-UNICEF survey)
<b>1990:</b> 454 cases	<b>1990:</b> 74% (official country est.)
<b>1980:</b> 1,520 cases	<b>1980:</b> 42% (official country est.)

### POLIOMYELITIS

Number of cases reported	Pol3 vaccination coverage
<b>2002:</b> 0 wild-virus confirmed polio cases	<b>2001:</b> 88% (official country est.); 88% (WHO-UNICEF est.)
<b>2001:</b> 0 wild-virus confirmed polio cases	<b>2000:</b> 85% (official country est.)
<b>2000:</b> 0 wild-virus confirmed polio cases	<b>1999:</b> NA
<b>1999:</b> 0 wild-virus confirmed polio cases	<b>1998:</b> 76% (official country est.)
<b>1998:</b> 26 wild-virus confirmed polio cases	<b>1997:</b> 79% (official country est.); 64% (WHO-UNICEF survey)
<b>1997:</b> 6 wild-virus confirmed polio cases	<b>1990:</b> 74% (official country est.)
<b>1996:</b> 0 wild-virus confirmed polio cases	<b>1980:</b> 63% (official country est.)

### TUBERCULOSIS

Number of cases reported	BCG vaccination coverage
<b>Estimated number of new cases (2000):</b> 24,138	<b>2001:</b> 82% (official country est.); 89% (WHO-UNICEF est.)
<b>Estimated number of new cases of smear positive TB (2000):</b> 10,860	<b>2000:</b> 82% (official country est.)
<b>Estimated incidence of TB (2000):</b> 36.2/100,000/year	<b>1999:</b> NA
	<b>1998:</b> 77% (official country est.)
	<b>1997:</b> 73% (official country est.); 89% (WHO-UNICEF survey)
	<b>1990:</b> 16% (official country est.)
	<b>1980:</b> 74% (official country est.)