

## HEPATITIS A

**Cause:** Hepatitis A virus, a member of the picornavirus family.

**Transmission:** The virus is acquired directly from infected persons by the faecal–oral route or by close contact, or by consumption of contaminated food or drinking-water. There is no insect vector or animal reservoir (although some non-human primates are sometimes infected).

**Nature of the disease:** An acute viral hepatitis with abrupt onset of fever, malaise, nausea and abdominal discomfort, followed by the development of jaundice a few days later. Infection in very young children is usually mild or asymptomatic; older children are at risk of symptomatic disease. The disease is more severe in adults, with illness lasting several weeks and recovery taking several months; case-fatality is greater than 2% for those over 40 years of age and 4% for those over 60.

**Geographical distribution:** Worldwide, but most common where sanitary conditions are poor and the safety of drinking-water is not well controlled (see map).

**Risk for travellers:** Non-immune travellers to developing countries are at significant risk of infection. The risk is particularly high for travellers exposed to poor conditions of hygiene, sanitation and drinking-water control.

**Prophylaxis:** Vaccination (see Chapter 6).

**Precautions:** Travellers who are non-immune to hepatitis A (i.e. have never had the disease and have not been vaccinated) should take particular care to avoid potentially contaminated food and water.

## HEPATITIS B

**Cause:** Hepatitis B virus (HBV), belonging to the Hepadnaviridae.

**Transmission:** Infection is transmitted from person to person by contact with infected body fluids. Sexual contact is an important mode of transmission, but infection is also transmitted by transfusion of contaminated blood or blood products, or by use of contaminated needles or syringes for injections. There is also a potential risk of transmission through other skin-penetrating procedures including acupuncture, piercing and tattooing. Perinatal transmission may occur from mother to baby. There is no insect vector or animal reservoir.

**Nature of the disease:** Many HBV infections are asymptomatic or cause mild symptoms, which are often unrecognized in adults. When clinical hepatitis results from infection, it has a gradual onset, with anorexia, abdominal discomfort, nausea, vomiting, arthralgia and rash, followed by the development of jaundice in some cases. In adults, about 1% of cases are fatal. Chronic HBV infection persists in a proportion of adults, some of whom later develop cirrhosis and/or liver cancer.

**Geographical distribution:** Worldwide, but with differing levels of endemicity. In north America, Australia, northern and western Europe and New Zealand, prevalence of chronic HBV infection is relatively low (less than 2% of the general population) (see map).

**Risk for travellers:** Negligible for those vaccinated against hepatitis B. Unvaccinated travellers are at risk if they have unprotected sex or use contaminated needles or syringes for injection, acupuncture, piercing or tattooing. An accident or medical emergency requiring blood transfusion may result in infection if the blood has not been screened for HBV. Travellers engaged in humanitarian relief activities may be exposed to infected blood or other body fluids in health care settings (see box on Accidental exposure to blood or other fluids).

**Prophylaxis:** Vaccination.

**Precautions:** Adopt safe sexual practices and avoid the use of any potentially contaminated instruments for injection or other skin-piercing activity.



## HEPATITIS C

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**Cause:** Hepatitis C virus (HCV), which is a flavivirus.

**Transmission:** The virus is acquired through person-to-person transmission by parenteral routes. Before screening for HCV became available, infection was mainly transmitted by transfusion of contaminated blood or blood products. Nowadays transmission frequently occurs through use of contaminated needles, syringes and other instruments used for injections and other skin-piercing procedures. Sexual transmission of hepatitis C occurs rarely. There is no insect vector

or animal reservoir for HCV.

**Nature of the disease:** Most HCV infections are asymptomatic. In cases where infection leads to clinical hepatitis, the onset of symptoms is usually gradual, with anorexia, abdominal discomfort, nausea and vomiting, followed by the development of jaundice in some cases (less commonly than in hepatitis B). Most clinically affected patients will develop a long-lasting chronic infection, which may lead to cirrhosis and/or liver cancer.

**Geographical distribution:** Worldwide, with regional differences in levels of prevalence, as shown on the map.

**Risk for travellers:** Travellers are at risk if they practise unsafe behaviour involving the use of contaminated needles or syringes for injection, acupuncture, piercing or tattooing. An accident or medical emergency requiring blood transfusion (see box on Accidental exposure to blood or other fluids) may result in infection if the blood has not been screened for HCV. Travellers engaged in humanitarian relief activities may be exposed to infected blood or other body fluids in health care settings.

**Prophylaxis:** None.

**Precautions:** Adopt safe sexual practices and avoid the use of any potentially contaminated instruments for injection or other skin-piercing activity.



## HEPATITIS E

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**Cause:** Hepatitis E virus, which has not yet been definitively classified (formerly classified as Caliciviridae).

**Transmission:** Hepatitis E is a waterborne disease usually acquired from contaminated drinking-water. Direct faecal–oral transmission from person to person is also possible. There is no insect vector. It is suspected, but not proved, that hepatitis E may have a domestic animal reservoir host, such as pigs.

**Nature of the disease:** The clinical features and course of the disease are generally similar to those of hepatitis A. As with hepatitis A, there is no chronic phase. Young adults are most commonly affected. In pregnant women there is an important difference between hepatitis E and hepatitis A: during the third trimester of pregnancy, hepatitis E takes a much more severe form with a case-fatality rate reaching 20%.

**Geographical distribution:** Worldwide. Most cases, both sporadic and epidemic, occur in countries with poor standards of hygiene and sanitation.

**Risk for travellers:** Travellers to developing countries may be at risk when exposed to poor conditions of sanitation and drinking-water control.

**Prophylaxis:** None.

**Precautions:** Travellers should follow the general conditions for avoiding potentially contaminated food and drinking-water.