DISEASE: Viral Hepatitis Type A (HA)

AGENT

Hepatitis A virus (HAV); RNA virus, genus ***Enterovim,*** family Picornaviridae

RECOGNITION

Syndrome: Human: Sudden onset of fever, malaise, anorexia, and nausea. Dark urine and jaundice may also develop. Generally more serious in adults, often subclinical in children.

Incubation period Human, **15-50** days; 3-4 weeks in nonhuman primates.

Case fatality rate: <1.0% in humans.

Confirmatory tests: Serologic testing to detect IgM anti-HAV in paired sera.

Occurrence: Worldwide, most commonly among older children and young adults, and may be sporadic or epidemic. In many developing nations, adults are immune because of prior infection. Humans and nonhuman primates are reservoirs.

Transmission: Shed in feces, with the highest concentrations occurring late in incubation period and early in illness. Among humans, transmission is primarily person-to-person, usually by the fecal-oral route, and is facilitated by poor hygiene. Infected food handlers are often the cause of outbreaks, and infections are common at day-care centers with diapered children. Intravenous drug users are frequently infected, as are sexual and other intimate contacts of acutely ill. Contaminated water or food also may be sources. Clams, oysters, and other filter-feeders from contaminated waters are often a source. Nonhuman primates are infected via ingestion of contaminated food or water or coprophagy; humans may become infected from exposure to infected primates when hygienic precautions are not observed.

CONTROL AND PREVENTION

IndividuaVherd Food handlers should practice careful hygiene and wash hands frequently. Travelers to endemic areas who may be at high risk should receive pre-exposure IG. While in endemic areas, avoid drinking unbottled water or beverages with ice and eating uncooked shellfish or uncooked fruits or vegetables. Care in handling

nonhuman primates is important to avoid contact with excreta.

LocaVcommunity: Public education campaigns should be conducted to alert people to the mode of spread of the **virus** and to emphasize the importance of good hygiene, especially thorough hand washing and the sanitary disposal of feces. Proper sewage and water treatment systems should be provided.

NationaVinternationak None

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DISEASE: Viral Hepatitis Type B (HB)

AGENT

Hepatitis B virus (HBV); DNA virus, genus ***Hepudnuvints,*** family Hepadnaviridae

RECOGNITION

Syndrome: Human: Insidious onset of anorexia, malaise, and gastrointestinal signs, frequently progressing to jaundice. Mild fever,

arthralgias, and **skin** rashes may also occur. Severity is variable, from subclinical to fulminant life threatening. Chronic infections can develop, particularly if infected in infancy or early childhood; a long-term carrier state, often progressing to cirrhosis, may result. Is a major cause of primary hepatocellular carcinoma, and may be responsible for up **to** 80% of cases worldwide.

Incubation period In humans, **45-180** days, average **120** days. Over **180** days in chimpanzees.
Case fatality rate: About **1.4%** of reported human cases.
Confirmatory tests: RIA or ELISA testing for HBV surface antigen (HBsAg) or other markers.
Occurrence: Worldwide, and variably endemic. In the United States, western Europe, and Australia, HB is of low endemicity. In these areas, infection usually contracted in young adulthood, and less than **1%** of the population are chronically infected. Intravenous drug addicts, homosexual men, heterosexuals with multiple partners, and health care personnel who have frequent and routine exposure to blood and other body fluids are at greatest risk. In China, Southeast Asia, Africa, Oceania, the Middle East, and the Amazon Basin, **HB** is highly endemic. Most **HB** in these countries is acquired at birth

or during childhood, and **8%-15%** of the population are carriers. In moderately endemic areas, **2%-7%** of the population have chronic infections. High prevalence rates of HB antibodies have been found in some species of nonhuman primates.
Transmission: In humans, mainly by percutaneous or permucosal contact with infective body fluids. Contaminated needles and syringes contribute to spread among drug addicts, and is also transmitted by sexual activity. In highly endemic areas, perinatal infection is frequent.
CONTROL AND PREVENTION
Individuallherd: Vaccines are available and should be administered to individuals at high risk. Pregnant women should be screened for HBsAg, and newborn infants of those testing positive should receive HB immunoglobulin (HBIG). Persons exposed via percutaneous or permucosal contact should receive HBIG and vaccine. Blood donated to blood banks should be tested for HBsAg. Gloves should be worn when handling infected animals or when there is likelihood of **skin** contact with infectious material.
LocaVcommunity: In hyperendemic and moderately endemic areas, vaccinate infants and children.
NationaVinternatioaaI: None.

DISEASE: Viral Hepatitis Type C (HC)

AGENT
Hepatitis C virus (HCV); unclassified RNA virus, possibly a flavivirus
RECOGNITION
Syndrome: Human: Insidious onset of anorexia, gastrointestinal discomfort, nausea, and vomiting; jaundice develops less frequently than in HB. Severity is variable, from subclinical to fulminating, although rarely life threatening. Chronic HC develops in about **50%**

of patients but does not usually progress to cirrhosis; clinical improvement is often seen within **2-3** years. .
Incubation period: In humans, usually about **6-9** weeks.
Case fatality rate: Low.
Confirmatory tests: Serologic testing. Most with chronic HC have antibodies, but there may be a long period after onset of acute

disease before detectable antibodies develop.
Occurrence: Worldwide. In the United States, causes **20%-40%** of community-acquired acute viral hepatitis and about 90% of post-transfusion hepatitis. Groups at high risk include transfusion recipients, users of illicit parenteral drugs, dialysis patients, health care workers who have frequent contact with blood and persons who have had hepatitis in the past, and household and sexual contacts of infected persons. Spontaneous HC infections have not been reported in nonhuman hosts.
Transmission: Percutaneous exposure to blood or plasma from an infected person, either by direct contact (e.g., transfusion) or by contaminated needles and syringes, is most common. Exposure by person-to-person contact and sexual activity also may occur.
CONTROL AND PREVENTION
Individualherd Similar to HB. Because of the lack of a sensitive test for HCV antibodies, blood banks should discard any donated units with elevated liver enzyme levels. The value of administration of prophylactic IG to persons exposed to HC has not been established. Interferon may be useful in treating patients with chronic disease. No vaccine is available. Gloves should be **worn** when handling infected chimpanzees and when there is likelihood of skin contact with infectious material.
LocaVcommunity: None.
Na tlonaVin term tioaal: None.

DISEASE: Viral Hepatitis Type D (HD)

AGENT
Hepatitis delta virus (HDV), a defective RNA virus that requires the presence of.HBV to replicate
RECOGNITION
Syndrome: Human: Always occurs either concurrently with acute HB, or superimposed upon an existing chronic HB infection. Clinical signs are similar **to** HB, and are usually of abrupt onset. Usually more severe in superinfections than in co-infections, and often leads to chronic HD.
Incubation period Uncertain in humans; 2-10 weeks in chimpanzees.
Case fatality rate: Similar to HB.

Confirmatory tests: Serologic testing (RIA, ELISA).
Occurrence: Worldwide, mostly among populations with high HB prevalence. Epidemics have occurred in Brazil, Venezuela, Colombia, and the Central African Republic. In the United States, groups at highest risk are hemophiliacs and others receiving blood or blood derivatives, users of parenteral street drugs, health care workers who have frequent contact with blood or infected persons, and male

homosexuals, Spontaneous HD infection has not been reported in nonhuman hosts.

Transmission: Same as HB.

CONTROL AND PREVENTION

Individuallherd: Same as HB. HDV cannot o m in the absence of HB. No vaccine is available for HD, and neither IG nor HBIG protects against HDV superinfection. Gloves should be worn when handling infected animals or when there is likelihood of skin contact with infectious material.

LocaVcommunity: In endemic areas, vaccination of infants and children against **HB** will also reduce occurrence of HD.

NationaVinternationak None.

DISEASE: Viral Hepatitis Type E (HE)

AGENT

Not yet completely characterized, but serologically distinct from other hepatitis viruses.

RECOGNITION

Syndrome: Human: Similar to **HA,** `with` sudden onset of fever, malaise, anorexia, and nausea; dark urine and jaundice are often present. Chronicity does not develop.

Incubation period 15-64 days, usually **26-42** days in humans.

Case fatality rate: Generally less than 1%, except may reach **20%** among pregnant women in the third trimester.

Confirmatory tests: Diagnosis by serologically excluding other hepatitis **viruses,** especially HA.

Occurrence: Epidemics have occurred in Asia, North and East Africa, and Mexico. Not endemic in the United States or western Europe, **as** cases in these countries have been limited to travelers returning

from endemic areas. Young to middle-aged adults, especially men, are most often affected. Children and the elderly seldom affected. Transmission: Fecal-oral route, with contaminated water the source of most epidemics. Poor hygiene can also result in person-to-person transmission.

CONTROL AND PREVENTION

Individualherd In endemic areas, avoid drinking unbottled water or beverageswith ice and eating uncooked shellfish or uncooked fruits or vegetables. Avoid fecal-oral exposure. No vaccine is available. LocaVcommunity: Proper sewage disposal. Chlorinate public water supplies.

NationaUinternationak None.