### 1. Name of the Organism:
Hepatitis A Virus

**Hepatitis A** virus (HAV) is classified with the enterovirus group of the *Picornaviridae* family. HAV has a single molecule of RNA surrounded by a small (27 nm diameter) protein capsid and a buoyant density in CsCl of 1.33 g/ml. Many other picornaviruses cause human disease, including polioviruses, coxsackieviruses, echoviruses, and rhinoviruses (cold viruses).

### 2. Nature of Acute Disease:
The term hepatitis A (HA) or type A viral hepatitis has replaced all previous designations: infectious hepatitis, epidemic hepatitis, epidemic jaundice, catarrhal jaundice, infectious icterus, Botkins disease, and MS-1 hepatitis.

### 3. Nature of Disease:
**CDC Case Definition**
Hepatitis A is usually a mild illness characterized by sudden onset of fever, malaise, nausea, anorexia, and abdominal discomfort, followed in several days by jaundice. The infectious dose is unknown but presumably is 10-100 virus particles.

**What is a "Case Definition"?**

**Overview of Public Health Surveillance**

### 4. Diagnosis of Human Illness:
Hepatitis A is diagnosed by finding IgM-class anti-HAV in serum collected during the acute or early convalescent phase of disease. Commercial kits are available.

### 5. Associated Foods:
HAV is excreted in feces of infected people and can produce clinical disease when susceptible individuals consume contaminated water or foods. Cold cuts and sandwiches, fruits and fruit juices, milk and milk products, vegetables, salads, shellfish, and iced drinks are commonly implicated in outbreaks. Water, shellfish, and salads are the most
frequent sources. Contamination of foods by infected workers in food processing plants and restaurants is common.

Hepatitis A has a worldwide distribution occurring in both epidemic and sporadic fashions. About 22,700 cases of hepatitis A representing 38% of all hepatitis cases (5-year average from all routes of transmission) are reported annually in the U.S. In 1988 an estimated 7.3% cases were foodborne or waterborne. HAV is primarily transmitted by person-to-person contact through fecal contamination, but common-source epidemics from contaminated food and water also occur. Poor sanitation and crowding facilitate transmission. Outbreaks of HA are common in institutions, crowded house projects, and prisons and in military forces in adverse situations. In developing countries, the incidence of disease in adults is relatively low because of exposure to the virus in childhood. Most individuals 18 and older demonstrate an immunity that provides lifelong protection against reinfection. In the U.S., the percentage of adults with immunity increases with age (10% for those 18-19 years of age to 65% for those over 50). The increased number of susceptible individuals allows common source epidemics to evolve rapidly.

Summary of Notifiable Diseases, United States, 1997: MMWR 46(54)

Summary of Notifiable Diseases, United States, 1996: MMWR 44(53)
7. Course of Disease and Complications:
The incubation period for hepatitis A, which varies from 10 to 50 days (mean 30 days), is dependent upon the number of infectious particles consumed. Infection with very few particles results in longer incubation periods. The period of communicability extends from early in the incubation period to about a week after the development of jaundice. The greatest danger of spreading the disease to others occurs during the middle of the incubation period, well before the first presentation of symptoms. Many infections with HAV do not result in clinical disease, especially in children. When disease does occur, it is usually mild and recovery is complete in 1-2 weeks. Occasionally, the symptoms are severe and convalescence can take several months. Patients suffer from feeling chronically tired during convalescence, and their inability to work can cause financial loss. Less than 0.4% of the reported cases in the U.S. are fatal. These rare deaths usually occur in the elderly.

8. Target Populations:
All people who ingest the virus and are immunologically unprotected are susceptible to infection. Disease however, is more common in adults than in children.

9. Food Analysis:
The virus has not been isolated from any food associated with an outbreak. Because of the long incubation period, the suspected food is often no longer available for analysis. No satisfactory method is presently available for routine analysis of food, but sensitive molecular methods used to detect HAV in water and clinical specimens, should prove useful to detect virus in foods. Among those, the PCR amplification method seems particularly promising.

10. Selected Outbreaks:

   Literature references can be found at the links below.

Hepatitis A is endemic throughout much of the world. Major national epidemics occurred in 1954, 1961 and 1971. Although no major epidemic occurred in the 1980s, the incidence of hepatitis A in the U.S. increased 58% from 1983 to 1989. Foods have been implicated in over 30 outbreaks since 1983. The most recent ones and the suspected contaminated foods include:


On November 26, 1990, hepatitis A was diagnosed in an employee of a restaurant in Cass County, Missouri. The employee's duties involved
washing pots and pans in the restaurant. From December 7, 1990, through January 9, 1991, hepatitis A was diagnosed in 110 persons, including four waitresses, who had eaten at the restaurant; two persons died as a result of fulminant hepatitis.

From 1983 through 1989, the incidence of hepatitis A in the United States increased 58% (from 9.2 to 14.5 cases per 100,000 population). Based on analysis of hepatitis A cases reported to CDC's national Viral Hepatitis Surveillance Program in 1988, 7.3% of hepatitis A cases were associated with foodborne or waterborne outbreaks (1). This report summarizes recent foodborne-related outbreaks of hepatitis A in Alaska, Florida, North Carolina, and Washington.

Two unrelated outbreaks of hepatitis A, involving a total of 326 people, occurred in Oklahoma and Texas during September and October 1983. Both were associated with restaurant food. Hepatitis A was defined as: (1) jaundice or (2) serum glutamic oxalacetic transaminase enzyme (SGOT) greater than 100 mIU/ml plus nausea, vomiting, or fever or (3) a positive serum anti-hepatitis A virus (HAV) immunoglobulin (IgM).

An increase in the number of hepatitis cases in Monmouth County, New Jersey, was reported to the New Jersey Department of Health on June 15, 1981. Investigation by state and local area health departments revealed that 56 cases of hepatitis had occurred during the first 3 weeks of June in an area of Monmouth County where the usual average is 3-4 cases/month. Detailed food histories revealed that, within the appropriate incubation period for hepatitis A, 55 of the 56 patients had eaten at a Mexican style restaurant.

For more information on recent outbreaks see the CDC.

Literature references can be found at the links below.

Available from the GenBank Taxonomy database, which contains the names of all organisms that are represented in the genetic databases with at least one nucleotide or protein sequence.

Important information and statistics about Hepatitis A.

None currently available.
CDC/MMWR
The CDC/MMWR link will provide a list of Morbidity and Mortality Weekly Reports at CDC relating to this organism or toxin. The date shown is the date the item was posted on the Web, not the date of the MMWR. The summary statement shown are the initial words of the overall document. The specific article of interest may be just one article or item within the overall report.

NIH/PubMed
The NIH/PubMed button at the top of the page will provide a list of research abstracts contained in the National Library of Medicine's MEDLINE database for this organism or toxin.

AGRICOLA
The AGRICOLA button will provide a list of research abstracts contained in the National Agricultural Library database for this organism or toxin.

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