

# Epidemiology Update

## Hepatitis A

### Hepatitis A Key Points

- ◆ Between 2000 and 2010, 209 cases of hepatitis A were reported in Hennepin County residents. This represents 30% of the cases reported in Minnesota during this time period.
- ◆ Age - the median age of cases was 27 years (range 10 months to 90 years).
- ◆ Sex - 122 (58%) of the cases were male. 87 (42%) were female.
- ◆ Race - 122 (58%) of the cases were white, 42 (20%) were black, 20 (10%) were Hispanic, 15 (7%) were Asian, 3 (1%) were Native American, and 7 (3%) were of unknown race.
- ◆ Outbreaks – 22 (10%) of cases were associated with various foodborne outbreaks.
- ◆ Post exposure prophylaxis - Persons exposed to a case of hepatitis A should receive post-exposure prophylaxis (IG or hepatitis A vaccine) within 2 weeks of the exposure.

### Introduction

This *Epidemiology Update* on hepatitis A highlights the occurrence of disease in Hennepin County residents from 2000-2010.

This issue of *Epidemiology Update* is one in a series of reports from Hennepin County Human Services and Public Health Department – Epidemiology available at [www.hennepin.us/EpiUpdates](http://www.hennepin.us/EpiUpdates)

### Background

The hepatitis A virus (HAV) causes an infection of the liver. Acute illness occurs in 70 to 80% of older children and adults infected with HAV; however only 30% of infected children under six years of age are symptomatic.<sup>1</sup> Symptoms may include fever, malaise, anorexia, abdominal pain, nausea, vomiting, dark-colored urine, and light-colored stools. Jaundice may appear a few days after acute illness onset and is more often seen in adults than in children. Symptoms usually last for less than two months, although 10-15% of symptomatic cases may have prolonged or relapsing illness for up to 6 months.<sup>2</sup> Fulminant hepatitis A, a severe and overwhelming infection of the liver, is rare and causes approximately 100 deaths per year in the United States.<sup>3</sup> Hepatitis A does not become a chronic infection like hepatitis B or C. HAV infection induces lifelong immunity.

An estimated 1.5 million clinical cases of hepatitis A occur worldwide each year.<sup>3</sup> In the United States, the Centers for Disease Control and Prevention (CDC) reported 2,585 acute clinical cases in 2008. Since many people infected with HAV are asymptomatic, the estimated number of acute clinical cases in 2008 was 11,000 and the CDC estimates that 29% to 33% of the United States population has ever been infected.<sup>4</sup> Rates of hepatitis in the United States have declined by 92% since hepatitis A vaccine first became available in 1995.

## *Transmission*

HAV is shed in the stool of an infected person and is usually spread to others by fecal-oral transmission. Modes of transmission include eating food or beverages infected by a person who didn't wash their hands after using the bathroom, drinking untreated water or eating food washed in untreated water, and having close personal contact with an infected person, such as changing the diaper of an infected child or having sexual contact with an infected person. Transmission may also occur after exposure to contaminated blood or blood products.

Infected humans are the only known source of the hepatitis A infection.

## *Incubation and Infectious Period*

The incubation period for hepatitis A can range from 15 to 50 days, but is usually 28 days. A person infected with hepatitis A is considered infectious from two weeks before to one week after the onset of jaundice. If the case does not develop jaundice, he/she is considered infectious until two weeks after the onset of symptoms.

## *Diagnosis*

The clinical case definition for acute viral hepatitis is 1) discrete onset of symptoms (e.g., nausea, anorexia, fever, malaise or abdominal pain) and 2) jaundice or elevated serum aminotransferase levels. Because the clinical characteristics are the same for all types of acute viral hepatitis, a hepatitis A diagnosis must be confirmed by a positive serologic test of immunoglobulin M (IgM) antibody to hepatitis A virus, or the case must meet the clinical case definition and occur in a person who has an epidemiologic link with a person who has laboratory-confirmed hepatitis A (i.e., household or sexual contact with an infected person 15-50 days before the onset of symptoms). Hepatitis A IgM antibody testing and liver function tests should be performed on suspect cases. Testing is not indicated for exposed persons who do not exhibit symptoms. No specific treatment is

available for HAV. Patients are recommended to rest and avoid drinking alcohol.

## *Exclusion*

Exclusion from school or work must be looked at individually to decide if a person with hepatitis A can spread the virus to others. Public Health will consult with the case to make this determination. Food workers with hepatitis A infection are required to report their diagnosis to their establishment's manager.

## *Risk Factors*

In the United States, nearly half of all reported hepatitis A cases have no specific risk factor identified. Among adults with identified risk factors, the majority of cases are among men who have sex with men (MSM), persons who inject drugs, and international travelers.<sup>2</sup>

The following groups are at increased risk for acquiring HAV infection:

- Household contacts of someone infected with HAV or those who live in communities with a high rate of HAV
- Travelers to hepatitis A endemic countries
- MSM
- Users of injection and non-injection illegal drugs
- Persons with clotting factor disorders
- Persons working with nonhuman primates susceptible to HAV infection or work with HAV in research settings

In areas of high endemicity, most people are asymptotically infected during childhood. This explains why clinical hepatitis A is uncommon in these areas. Nearly all adults living in developing countries have serological evidence of past HAV infection.<sup>6</sup>

In areas of low to intermediate endemicity, adult disease is seen more often. In low endemicity areas, hepatitis A usually occurs as single cases among high-risk individuals or as outbreaks involving a small number of cases.

## Vaccine

A vaccine against hepatitis A first became available in 1995. The single-antigen vaccine is given as a two dose series with at least 6 months between administration of doses. A combination vaccine is also available that protects against both hepatitis A and B and is given in three doses on a 0-, 1-, and 6-month schedule.

Hepatitis A vaccine is recommended for routine vaccination of all children 12 months of age and older. Adults at higher risk of hepatitis A infection, people with chronic liver disease, and international travelers should also consider vaccination. Vaccine is recommended as a prevention strategy for persons living in low endemicity areas who are traveling to an intermediate or high endemicity country.

The vaccine takes two to four weeks after the first dose to confer immunity and nearly 100% of persons will develop protective levels of antibody within one month of receiving the first dose of hepatitis A vaccine. The second dose of vaccine is recommended to ensure long-term protection.

## Data

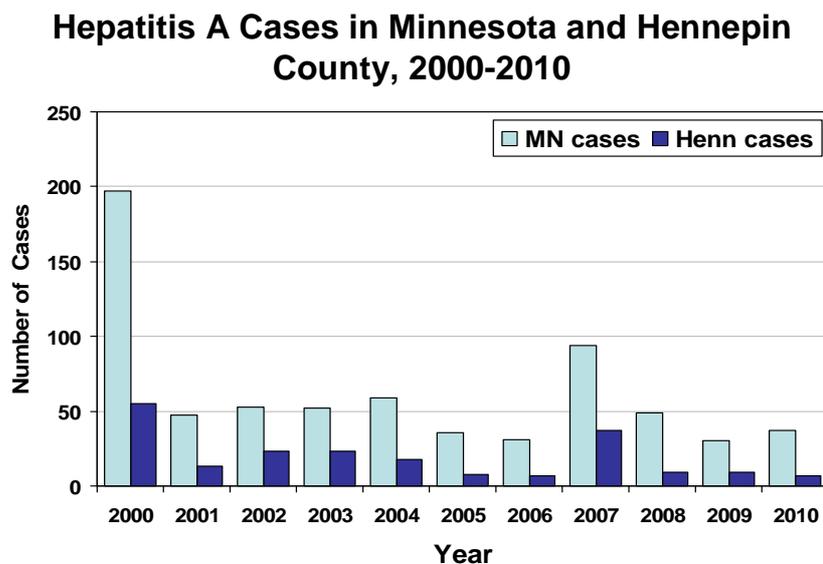
Between 2000 and 2010, 685 cases of hepatitis A were reported in Minnesota, of which 209 (30%) were Hennepin County residents. **Graph 1** shows the number of hepatitis A cases identified in Minnesota and Hennepin County from 2000 to 2010 by year. One hundred twenty nine (62%) of these cases were Minneapolis residents.

Of the Hennepin County cases, rates of disease during the 2000 to 2010 time period ranged from 0.6 to 4.9 cases per 100,000 population.

One hundred twenty two (58%) of the cases were male. Cases ranged in age from 10 months to 90 years (median, 27 years). Sixty eight (32%) cases were in children 18 years of age and younger. Only 9 (13%) of these cases were asymptomatic and 7 (10%) of these cases occurred in children less than 5 years of age.

One hundred forty two (68%) cases were white, 42 (20%) were black, 15 (7%) were Asian, and 3 (1%) were Native American; race was unknown for 7 cases (3%). Twenty (14%) of the 142 white cases reported their ethnicity as Hispanic.

Graph 1.



### Risk Factors

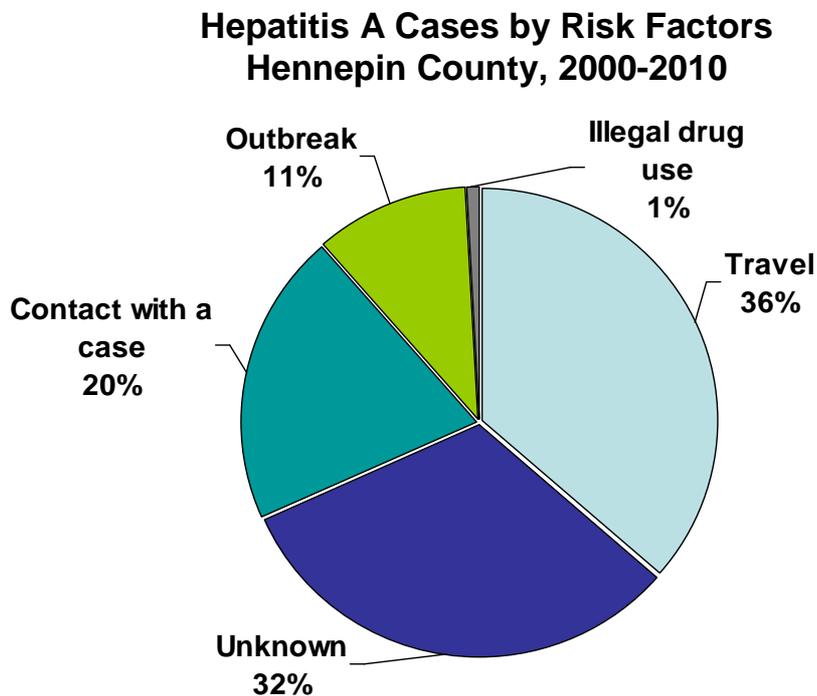
A risk factor was identified for 142 (68%) of cases (see **Graph 2**). Forty two (30%) of cases with a known risk factor reported exposure to a confirmed hepatitis A case. These persons who were exposed to a known case of hepatitis A represent missed opportunity for administering post-exposure prophylaxis (hepatitis A vaccine or immune globulin (IG)). Seventy six (53%) reported travel previous to symptoms. Of those 26 who reported where they traveled, 11 (42%) traveled to Mexico, Honduras, or another part of Central or South America; six (23%) traveled to Asia; three (11%) traveled to Africa; three (11%) traveled to India; and three (11%) traveled to Russia. Twenty two (15%) were part of a foodborne or waterborne outbreak of hepatitis A and two (1%) reported use of illegal drugs.

### Outbreaks

Between 2000 and 2010, six foodborne outbreaks occurred where Hennepin County residents were exposed to hepatitis A (two outbreaks in 2000, one in 2002, one in 2004, and two in 2007). The most recent foodborne outbreak of hepatitis A that occurred in 2007 in Hennepin County sickened 10 Hennepin County residents and five additional patrons who resided in other counties. Prompt reporting of suspect or laboratory confirmed cases expedites the public health investigation and is critical for identifying and halting outbreaks.

A person-to-person outbreak also occurred in a home in Hennepin County in 2007, which resulted in seven cases, three of whom were personal care attendants.

**Graph 2.**



Transmission has also been seen between recently arrived asymptotically infected international adoptees and their adoptive family members. Therefore, it is recommended that all household contacts, family members, caretakers, etc. be vaccinated with hepatitis A vaccine before an adoptee from counties with high or intermediate hepatitis A endemicity arrives in their new home.<sup>7</sup> Ideally the first dose of hepatitis A vaccine should be administered as soon as the adoption is planned or, at the very least, two weeks before the adoptee arrives.

## Post-exposure Prophylaxis

Persons exposed to a case of hepatitis A should receive post-exposure prophylaxis within two weeks of the exposure. New post-exposure prophylaxis recommendations were made by the Advisory Committee on Immunization Practices (ACIP) in 2007 and can be found at [www.cdc.gov/mmwr/preview/mmwrhtml/mm5641a3.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5641a3.htm)

- For healthy persons 12 months to 40 years of age, hepatitis A vaccine should be used. Persons who receive a first dose of vaccine as post-exposure prophylaxis should receive a second dose at least 6 months later to confer ongoing protection.
- For persons over 40 years of age, IG should be used. If IG cannot be obtained, vaccine can be given.
- For children under 12 months of age, immunocompromised persons, persons with chronic liver disease, and persons with a contraindication to vaccine, IG should be used.

An IG screening guide for healthcare providers is available from the Minnesota Department of Health (MDH) at [www.health.state.mn.us/divs/idepc/diseases/hepa/hcp/igscreen.pdf](http://www.health.state.mn.us/divs/idepc/diseases/hepa/hcp/igscreen.pdf)

## Prevention

The hepatitis A vaccine is the best way to prevent infection. Careful hands washing after using the toilet, after changing diapers, and before preparing or eating food will also help prevent the spread of HAV. A person infected with HAV should not prepare food for others while infectious. While traveling in developing countries, use bottled water for drinking, making ice cubes, and washing fruits

## Reporting

Promptly report suspect or lab-confirmed hepatitis A cases to MDH at 651-201-5414 or Hennepin County Human Services and Public Health – Epidemiology at 612-543-5230.

### More Information

**MDH** [www.health.state.mn.us/divs/idepc/diseases/hepa/index.html](http://www.health.state.mn.us/divs/idepc/diseases/hepa/index.html)

**CDC** [www.cdc.gov/hepatitis/Choosea.htm](http://www.cdc.gov/hepatitis/Choosea.htm)

**WHO** [www.who.int/csr/disease/hepatitis/whocdscsredc2007/en/](http://www.who.int/csr/disease/hepatitis/whocdscsredc2007/en/)

## References:

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6. WHO. Immunization, Vaccines and Biologicals – Hepatitis A Vaccine. Accessed on September 29, 2011 at: [www.who.int/vaccines/en/hepatitisa.shtml](http://www.who.int/vaccines/en/hepatitisa.shtml)
7. CDC. Updated Recommendations from the Advisory Committee on Immunization Practices (ACIP) for Use of Hepatitis A Vaccine in Close Contacts of Newly Arriving International Adoptees. MMWR 2009;58(36):1006-7.