Hepatitis A

Hepatitis A infection is a disease that has undergone considerable change in its epidemiology over the past few decades. The current hepatitis A outbreak associated with frozen berries is just one of several recent produce-related outbreaks linked to this virus.

The Agent

Hepatitis is a general term for inflammation of the liver. The condition can be caused by chemicals, toxins, and various unrelated viral agents including hepatitis A virus. This human pathogen causing recognized outbreaks long before its viral etiology was known.

Infection with hepatitis A virus has varying symptoms depending on a person’s age. Older children and adults usually have fever, fatigue, gastrointestinal symptoms (anorexia, nausea, vomiting, diarrhea, abdominal pain), and often jaundice, with symptoms lasting one to several weeks; prolonged relapsing hepatitis can occur but there is no chronic infection. Persons with pre-existing liver disease, such as can occur with other forms of viral hepatitis causing chronic infection, may have a more severe illness with acute hepatitis A. Infection may be asymptomatic for younger children in particular, as well as for a rare adult. Infection or vaccine provides life-long immunity.

Hepatitis A virus is spread from one person to another through the fecal-oral route, either by direct contact with an infected person (e.g., eating with contaminated hands after changing a diaper) or through contaminated food or water. The incubation period from exposure to first symptoms is typically about 30 days but can range from 15 to 50 days. Infectivity through fecal shedding is maximal before onset of illness, but this period can be difficult to determine for an asymptotic case. The infectious dose is very low and the virus is persistent in the environment, resisting food processes such as acidification and freezing that are used to control bacterial agents.
In Washington, hepatitis A virus infection is a notifiable condition that should be reported within 24 hours by health care providers, health care facilities, and clinical laboratories (anti-HAV IgM positive serology). The national case definition includes clinical criteria of acute onset with either jaundice or elevated liver enzymes in addition to positive serology. This test can have false positive results, particularly for older persons without consistent symptoms. Recent vaccination for hepatitis A can also give a positive IgM.

Public health measures to control the spread of hepatitis A virus include finding the source of exposure for the case; ascertaining whether others shared the case’s exposure and notifying them of the risk; and identifying contacts of the case to provide them with education and to arrange any appropriate post-exposure prophylaxis. It is important to remind exposed persons that illness may develop even if prophylaxis is given. General measures to prevent hepatitis A transmission are assuring safe food and water, careful hand washing after using the toilet or changing a diaper, universal hepatitis A vaccination, and education of all persons preparing food for others not to work while ill with diarrhea.

**Epidemiology and Outbreaks**

With transmission by the fecal-oral route, hepatitis A infection has historically been associated with reduced hygiene. While rates in the United States remained below 10/100,000 starting in the 1980s, a few states including Washington continued to have higher incidence. The Washington rate for hepatitis A infection peaked at 70/100,000 in 1989. Both sporadic cases and outbreaks occurred, the latter associated with drug use, child care facilities, restaurants, and men having sex with men. The state’s rate did not reach the national level until about 2000.
As is true for most of the United States, about half of recent hepatitis A cases in Washington are associated with international travel. Other current risks for infection are contact with international adoptees and oral-anal sexual practices. However, some cases each year have no identified risk factors.

Imported produce has become a source of rare hepatitis A outbreaks, involving products such as green onions, sun dried tomatoes, and orange juice as well as fruit. There have also been a number of outbreaks associated with berries including a large multistate outbreak in 1997 that was first recognized in Michigan:

### Berry-Associated Hepatitis A Outbreaks

<table>
<thead>
<tr>
<th>Year</th>
<th>Location</th>
<th>Cases</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>Scotland</td>
<td>23</td>
<td>Frozen raspberries</td>
</tr>
<tr>
<td>1990</td>
<td>Multistate</td>
<td>28</td>
<td>Frozen strawberries</td>
</tr>
<tr>
<td>1997</td>
<td>Multistate</td>
<td>242</td>
<td>Frozen strawberries</td>
</tr>
<tr>
<td>2002</td>
<td>New Zealand</td>
<td>39</td>
<td>Raw blueberries</td>
</tr>
<tr>
<td>2012-13</td>
<td>Canada</td>
<td>5</td>
<td>Frozen berry blend</td>
</tr>
<tr>
<td>2013</td>
<td>Nordic Europe</td>
<td>56</td>
<td>Frozen berries</td>
</tr>
<tr>
<td>2013</td>
<td>Northern Italy</td>
<td>15</td>
<td>Frozen berries</td>
</tr>
</tbody>
</table>

A current hepatitis A outbreak in southwestern and western United States has been associated with a frozen berry mix. At press time the 99 cases confirmed to be associated with the outbreak are located in southwestern states (California, Nevada, Arizona, Utah, New Mexico, Colorado) and Hawaii. There have been 44 hospitalizations but no deaths. The implicated frozen mixed berry and pomegranate product, which was packed at a plant in Oregon and distributed through a large warehouse chain, has been recalled. It is not known at present if the United States outbreak is connected to outbreaks this year in Europe.

Produce can be contaminated by the field worker, during product production or processing, or during the final food preparation, and then is often eaten uncooked. Due to wide geographic distribution, contaminated produce can readily result in multistate outbreaks. Factors that may also contribute to risk are increased consumption of fresh produce for many people in this country seeking a more healthful diet and the increased importation of produce to meet those dietary demands.

Infection with hepatitis A virus is a potentially serious disease that can be prevented. Universal vaccination starting at age 12 months will eventually provide protection. Vaccination should be promoted in particular for those at increased risk of infection or at risk of severe infection, including persons traveling to counties with high rates of hepatitis A infection, men having sex with men, contacts of recently adopted children from countries with high rates, users of illegal drugs, and persons with chronic liver disease or clotting factor disorders. When a case of hepatitis A is identified, potential sources should be identified and any exposed contacts should be provided post-exposure prophylaxis and prevention education. Through vaccination and other public health measures, hepatitis A outbreaks can eventually be eliminated.
Recent Hepatitis A Outbreaks:

United States – current outbreak:

http://www.cdc.gov/hepatitis/Outbreaks/2013/A1b-03-31/index.html

Europe – 2012-2013 outbreaks:


http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20467