Hepatitis A - A Review of Disease and Surveillance Data

Florida Hospital Association
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Welcome!

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Florida Hospital Association
U.S. Outbreak

- Since the hepatitis A outbreaks were first identified in 2016, more than 15,000 cases, 8,500 (57%) hospitalizations, and 140 deaths as a result of hepatitis A virus (HAV) infection have been reported.


Media Scrutiny

CDC, state and local officials looking for sources of hepatitis A in Martin County, no leads

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Florida investigates hepatitis A outbreak

Hepatitis A continues to spread as Florida investigates the source
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Florida Lt. Gov. Jeanette Nuñez on investigating hepatitis A outbreak, 'State will leave no stone unturned'

Hepatitis A continues to spread as state investigates the source

Tampa Bay is ground zero for Florida's growing hepatitis A problem
Overview

• History
• Clinical overview
• Reporting requirements
• Prevention
• Epidemiology
History

• First likely descriptions of hepatitis were of epidemic jaundice, often attributed to Hippocrates.
• Outbreaks of jaundice that were likely hepatitis A were reported in the 17th and 18th centuries.
• Hepatitis A was first differentiated from hepatitis B in the 1940s.
• Hepatitis A virus (HAV) was isolated in the 1970s, and serologic testing was developed.
Hepatitis A Virus

- Nonenveloped RNA virus
  - Picornavirus
- Humans are the only natural host
- Stable in many environments for months
- Inactivated by:
  - High temperatures (185°F or higher for 1 minute)
  - Formalin
  - Chlorine
    - Properly chlorinated drinking water
    - 1:100 bleach and water solution for cleaning
Pathogenesis

- Fecal-oral transmission
  - Contaminated food or water
  - Person-to-person
- Percutaneous transmission is rare but possible
- Virus replicates in the liver and is excreted via the biliary system into stool
  - Present in blood and stool 10–12 days after infection
  - Persists for up to 3 weeks after symptom onset

Clinical Course


Source: Future ViHi © 2012 Future Medicine Ltd
Clinical Description

- Incubation period 15–50 days (average 28 days).
- Acute symptom presentation includes fever, malaise, anorexia, nausea, abdominal pain, diarrhea, jaundice, dark urine.
- Illness does not usually last more than 2 months.
- 10–15% of persons have prolonged or relapsing symptoms for up to 6 months.
- Children under 6 years of age are often asymptomatic.

Diagnostic Laboratory Testing

- Serologic testing for IgM anti-HAV:
  - Present 5–10 days before onset of illness and up to 6 months after.
  - Indicative of current or recent infection.
- Considerations:
  - 10% of persons may be negative with initial illness and testing.
  - 20% of vaccine recipients will be positive in the 2 weeks after vaccination.
  - Almost 100% of persons will be positive in the 2 days after peak alanine aminotransferase (ALT) levels.
Additional Laboratory Testing

• Serologic testing for IgG anti-HAV
  • Develops during convalescent phase of illness and persists for life, conferring immunity
  • Indicative of past infection or immunization
  • Not diagnostically helpful
• Polymerase chain reaction (PCR) can be used to amplify and sequence virus
  • Not widely available
  • Not FDA-approved

Laboratory Testing

• Who should be tested?
  • Persons who have symptoms that are consistent with hepatitis A
• Who should not be tested?
  • Persons who do not have symptoms that are consistent with hepatitis A, even in the presence of elevated liver enzymes
  • Testing persons with no symptoms can lead to false positive results or results that are of no clinical importance
  • Lowers the positive predictive value of the test
Additional Laboratory Findings

- Tests of the liver
  - Includes ALT, aspartate aminotransferase (AST), alkaline phosphatase, and bilirubin
- Often referred to as liver function tests or LFTs
  - LFTs or ALTs may be significantly elevated but not necessarily indicative of an adverse outcome
  - ALT levels return to normal on average in about 7 weeks in persons with hepatitis A

Management

- There is no specific treatment for hepatitis A.
- Management of the illness is supportive.
- Complications are rare but can include chronic autoimmune hepatitis, relapsing or prolonged illness, pancreatitis, cholestasis, acalculus cholecystitis, or hemolytic anemia.
  - Fulminant hepatitis is the most severe rare complication with mortality estimates up to 80%.
- Case fatality rate estimates range from 0.3–0.6%.
  - Up to 1.8% for adults aged >50 years.
Standard precautions should be used to prevent transmission to health care workers or other patients.

Image source: http://professionals.cdc.gov/protect-your-patients/follow-the-rules-for-isolation-precautions/

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Infection Prevention

If a case is diapered or incontinent, contact precautions should also be implemented.

- Infants and children under 3 years of age: contact precautions should be maintained for the duration of hospitalization.
- Children 3–14 years old: contact precautions should be maintained for 2 weeks after onset of symptoms.
- Persons over 14 years old: contact precautions should be maintained for 1 week after onset of symptoms.
Reporting Requirements

Reportable Disease List

Can also be found on the Florida Department of Health website:

Reporting Requirements

- Hepatitis A is reportable immediately 24/7 by phone to your county health department:
  - Patient demographics
  - All hepatitis laboratory results
  - Liver enzyme results
  - H&P, GI or ID consults, discharge summary, imaging results for the biliary system, any other relevant clinical summaries

Prevention
Vaccination

• Best way to prevent hepatitis A infection is vaccination
• First vaccines for hepatitis A licensed in 1995 and 1996
• Originally recommended for children 2–18 years in areas with highest incidence of infections
  • Did not impact the overall incidence of HAV infections in the U.S.
• In 2006, the vaccine was added to the childhood vaccination schedule

Vaccination, Continued

• Two inactivated hepatitis A vaccines available
  • HAVRIX and VAQTA
• Combination hepatitis A and hepatitis B vaccine
  • TWINRIX
• Efficacy
  • More than 95% of adults are seropositive after 1 dose and nearly 100% seropositive after 2 doses
  • More than 97% of children seropositive after 1 dose and 100% seropositive after 2 doses (in clinical trials)
Who should get vaccinated?

- All children at age 1 year
- Travelers to countries where hepatitis A is common
- Families and caregivers of adoptees where hepatitis A is common
- Men who have sex with men
- Persons who use recreational drugs (injection and non-injection)
- Persons experiencing homelessness
- Persons with chronic liver disease
- Persons with clotting-factor disorders
- Persons with direct contact with others who have hepatitis A
- Anyone wishing to obtain immunity

Hepatitis A Vaccine Schedule

<table>
<thead>
<tr>
<th>Age</th>
<th>Vaccine</th>
<th>Hepatitis A Antigen Dose</th>
<th>Volume Per Dose, mL</th>
<th>No. of Doses</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 months – 18 years</td>
<td>Havrix</td>
<td>720 ELU</td>
<td>0.5</td>
<td>2</td>
<td>Initial and 6–12 months later</td>
</tr>
<tr>
<td>12 months – 18 years</td>
<td>Vaqta</td>
<td>25U</td>
<td>0.5</td>
<td>2</td>
<td>Initial and 6–12 months later</td>
</tr>
<tr>
<td>19 years or older</td>
<td>Havrix</td>
<td>1440 ELU</td>
<td>1.0</td>
<td>2</td>
<td>Initial and 6–12 months later</td>
</tr>
<tr>
<td>19 years or older</td>
<td>Vaqta</td>
<td>50 U⁷</td>
<td>1.0</td>
<td>2</td>
<td>Initial and 6–12 months later</td>
</tr>
<tr>
<td>18 years or older</td>
<td>Twinrix</td>
<td>720 ELU</td>
<td>1.0</td>
<td>3 or 4</td>
<td>Initial, 1 month, and 6 months later or Initial, 7 days, at 21–30 days, and at 12 months</td>
</tr>
</tbody>
</table>
Prevention for Patients

- Persons with hepatitis A infection are infectious 2 weeks prior to the onset of jaundice or symptoms until 1 week after.
- Good hand hygiene is important in preventing transmission.
  - Thoroughly wash hands after using the bathroom.
- Avoid preparing food for others.
- Avoid oral-anal contact and any sexual activities where contact with fecal matter is likely.

Post-Exposure Prophylaxis

- People who have been exposed to hepatitis A and have not been vaccinated should receive the hepatitis A vaccine or intramuscular immune globulin (IGIM) as soon as possible after exposure.
- Efficacy of vaccine or IGIM given more than 2 weeks after exposure has not been established.
### Post-Exposure Prophylaxis Recommendations

<table>
<thead>
<tr>
<th>Time Since Exposure</th>
<th>Age of Patient</th>
<th>Recommended Prophylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 weeks or less</td>
<td>Younger than 12 months</td>
<td>IGIM, 0.1 mL/kg</td>
</tr>
<tr>
<td></td>
<td>12 months through 40 years</td>
<td>Hep A vaccine</td>
</tr>
<tr>
<td></td>
<td>41 years or older</td>
<td>Hep A vaccine, IGIM, 0.1 mL/kg, per provider’s risk assessment</td>
</tr>
<tr>
<td></td>
<td>People of any age who are immunocompromised, have chronic liver disease, or contraindication to vaccine</td>
<td>Hep A vaccine, IGIM, 0.1 mL/kg</td>
</tr>
<tr>
<td>More than 2 weeks</td>
<td>Younger than 12 months</td>
<td>No prophylaxis</td>
</tr>
<tr>
<td></td>
<td>12 months or older</td>
<td>No prophylaxis, Hep A vaccine may be indicated for ongoing exposure</td>
</tr>
</tbody>
</table>

Pre-Vaccine Era

• Pre-vaccine, hepatitis A occurred in large nationwide epidemics.
  • 1971 had the most cases reported in a single year—59,606.
• Historically, children ages 2–18 years had the highest rates of hepatitis A (15–20 cases per 100,000 population).
• Since a vaccine was introduced, rates have decreased by more than 95%.

Rates of Reported Acute Hepatitis A Cases, United States, 1966–2016

Outbreaks Among People Who Use Drugs and/or People Who Are Homeless

- Since March 2017, CDC has been monitoring outbreaks of hepatitis A in several states that are spread through person-to-person contact.
- The outbreaks have occurred primarily among persons who use injection and non-injection drugs and/or persons who are homeless and their direct contacts.
Outbreaks Among Persons Who Use Drugs
and/or Persons Who Are Homeless, Continued

Hepatitis A Cases Reported in Florida, 1997–2018

Source: Centers for Disease Control and Prevention www.cdc.gov/hepatitis/outbreaks/2017March-HepatitisA.htm (3-26-19)

Source: Merlin data
Florida 2017

- **276 Cases Reported**
  - Miami-Dade — 132 cases (48%)
  - Broward — 35 cases (13%)
  - Palm Beach — 16 cases (6%)
  - Lee — 12 cases (4%)

- **Demographics**
  - Male — 217 cases (79%)
  - White — 222 cases (80%)
  - Non-Hispanic — 176 cases (64%)
  - Median age — 38 years

- **Risk Factors**
  - Acquired in Florida — 172 cases
  - Injection drug use — 10 cases (4%)
  - Non-injection drug use — 19 cases (7%)
  - MSM — 46 cases (17%)

Florida 2018 to Present

- **1431 Cases Reported***
  - Pinellas — 310 cases
  - Pasco — 254 cases
  - Orange — 171 cases
  - Hillsborough — 158 cases
  - Marion — 67 cases

- **Demographics**
  - Male — 943 cases (66%)
  - White, non-Hispanic — 1154 cases (81%)
  - Median age — 39 years old

- **Risk Factors**
  - Acquired in Florida — 1286 cases (90%)
  - Any drug use — 755 cases (53%)
  - Injection drug use — 482 cases (34%)
  - Non-injection drug use — 496 cases (35%)
  - Homelessness — 250 cases (17%)
  - MSM — 90 cases (6%)
  - No/Unknown risk factors — 591 cases (41%)

*As of April 20, 2019
Questions?

FHA EM Education

- **May 29 | Webinar**
  Expanding Hospital Participation in Florida’s Federal Coordinating Centers

- **May 30 | Webinar**
  2019 Hurricane Preparedness
Webinar Evaluation

• We would appreciate your feedback!!
• Web participants can stay logged in as the webinar closes to be redirected to the online survey (the link will also be provided in a follow-up email).

Thank you!

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