# The ABCs of Hepatitis

<table>
<thead>
<tr>
<th><strong>HEPATITIS A</strong> is caused by the Hepatitis A virus (HAV)</th>
<th><strong>HEPATITIS B</strong> is caused by the Hepatitis B virus (HBV)</th>
<th><strong>HEPATITIS C</strong> is caused by the Hepatitis C virus (HCV)</th>
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<tbody>
<tr>
<td><strong>U.S. Statistics</strong></td>
<td>• Estimated 2,500 new infections in 2014</td>
<td>• Estimated 30,500 new infections in 2014</td>
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<td>• Estimated 19,200 new infections in 2014</td>
<td>• Estimated 2.7–3.9 million people with chronic HCV infection</td>
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<td>• Estimated 850,000 - 2.2 million people with chronic HBV infection</td>
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<td><strong>Routes of Transmission</strong></td>
<td>Ingestion of fecal matter, even in microscopic amounts, from:</td>
<td>Contact with blood of an infected person primarily through:</td>
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<td>• Close person-to-person contact with an infected person</td>
<td>• Sharing of contaminated needles, syringes, or other injection drug equipment</td>
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<td>• Sexual contact with an infected person</td>
<td>Less commonly through:</td>
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<td></td>
<td>• Ingestion of contaminated food or drinks</td>
<td>• Sexual contact with an infected person</td>
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<td>• Birth to an infected mother</td>
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<td>• Needlestick or other sharp instrument injuries</td>
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<td><strong>Persons at Risk</strong></td>
<td>• Travelers to regions with intermediate or high rates of Hepatitis A</td>
<td>• Current or former injection drug users</td>
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<td>• Sex contacts of infected persons</td>
<td>• Recipients of clotting factor concentrates before 1987</td>
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<td>• Household members or caregivers of infected persons</td>
<td>• Recipients of blood transfusions or donated organs before July 1992</td>
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<td>• Men who have sex with men</td>
<td>• Long-term hemodialysis patients</td>
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<td>• Users of certain illegal drugs (injection and non-injection)</td>
<td>• Persons with known exposures to HCV (e.g., healthcare workers after needlesticks, recipients of blood or organs from a donor who later tested positive for HCV)</td>
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<td>• Persons with clotting-factor disorders</td>
<td>• HIV-infected persons</td>
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<td>• Infants born to infected mothers</td>
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<td><strong>Incubation Period</strong></td>
<td>15 to 50 days (average: 28 days)</td>
<td>14 to 180 days (average: 45 days)</td>
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<td>45 to 160 days (average: 120 days)</td>
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<td><strong>Symptoms of Acute Infection</strong></td>
<td>Symptoms of all types of viral hepatitis are similar and can include one or more of the following:</td>
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<td>• Loss of appetite • Nausea • Vomiting • Abdominal pain • Gray-colored bowel movements • Joint pain • Jaundice</td>
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<td><strong>Likelihood of Symptomatic Acute Infection</strong></td>
<td>• &lt; 10% of children &lt; 6 years have jaundice</td>
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<td>• 40%–50% of children age 6–14 years have jaundice</td>
<td>• 20%–30% of newly infected persons develop symptoms of acute disease</td>
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<td>• 70%–80% of persons &gt; 14 years have jaundice</td>
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<td><strong>Potential for Chronic Infection</strong></td>
<td>None</td>
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<td>• Among unimmunized persons, chronic infection occurs in &gt;90% of infants, 25%–50% of children aged 1–5 years, and 6%–10% of older children and adults</td>
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<td><strong>Severity</strong></td>
<td>Most persons with acute disease recover with no lasting liver damage; rarely fatal</td>
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<td>Most persons with acute disease recover with no lasting liver damage; acute illness is rarely fatal</td>
<td>• Acute illness is uncommon. Those who do develop acute illness recover with no lasting liver damage.</td>
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<td>15%–25% of chronically infected persons develop chronic liver disease, including cirrhosis, liver failure, or liver cancer</td>
<td>• 60%–70% of chronically infected persons develop chronic liver disease</td>
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<td>1,800 persons in the United States die with HBV-related liver disease as documented from death certificates</td>
<td>• 5%–20% develop cirrhosis over a period of 20–30 years</td>
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<td>• 1%–5% will die from cirrhosis or liver cancer</td>
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<td>• 19,600 deaths in 2014</td>
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### Hepatitis A

**Serologic Tests for Acute Infection**
- IgM anti-HAV

**Serologic Tests for Chronic Infection**
- Not applicable—no chronic infection

**Screening Recommendations for Chronic Infection**
- Not applicable—no chronic infection
  
  Note: Screening for past acute infection is generally not recommended

**Treatment**
- No medication available
- Best addressed through supportive treatment

**Vaccination Recommendations**
- Hepatitis A vaccine is recommended for:
  - All children at age 1 year
  - Travelers to regions with intermediate or high rates of Hepatitis A
  - Men who have sex with men
  - Users of certain illegal drugs (injection and non-injection)
  - Persons with clotting-factor disorders
  - Persons who work with HAV-infected primates or with HAV in a research laboratory
  - Persons with chronic liver disease, including HBV- and HCV-infected persons with chronic liver disease
  - Family and care givers of recent adoptees from countries where Hepatitis A is common
  - Anyone else seeking long-term protection

**Vaccination Schedule**
- 2 doses given 6 months apart

### Hepatitis B

**Serologic Tests**
- HBsAg in acute and chronic infection
- IgM anti-HBc is positive in acute infection only

**Screening Assay**
- HBsAg (and additional markers as needed)

**Serologic Tests for Chronic Infection**
- Not applicable—no chronic infection

**Screening Assay**
- Screening assay (EIA or CIA) for anti-HCV
- Verification by an additional, more specific assay (e.g., nucleic acid testing (NAT) for HCV RNA)

**Screening Recommendations for Chronic Infection**
- Not applicable—no chronic infection
  
  Note: Screening for past acute infection is generally not recommended

**Testing is recommended for:**
- All pregnant women
- Persons born in regions with intermediate or high rates of Hepatitis B (HBsAg prevalence of ≥2%)
- U.S.-born persons not vaccinated as infants whose parents were born in regions with high rates of Hepatitis B (HBsAg prevalence of ≥8%)
- Infants born to HBsAg-positive mothers
- Household, needle-sharing, or sex contacts of HBsAg-positive persons
- Men who have sex with men
- Injection drug users
- Patients with elevated liver enzymes (ALT/AST) of unknown etiology
- Hemodialysis patients
- Persons needing immunosuppressive or cytotoxic therapy
- HIV-infected persons
- Donors of blood, plasma, organs, tissues, or semen

**Treatment**
- Acute: No medication available; best addressed through supportive treatment
- Chronic: Regular monitoring for signs of liver disease progression; some patients are treated with antiviral drugs

**Vaccination Recommendations**
- Hepatitis B vaccine is recommended for:
  - All infants at birth
  - Older children who have not previously been vaccinated
  - Persons with multiple sex partners
  - Persons seeking evaluation or treatment for an STD
  - Men who have sex with men
  - Injection drug users
  - Susceptible household contacts of infected persons
  - Healthcare and public safety workers exposed to blood on the job
  - Persons with chronic liver disease, including HCV-infected persons with chronic liver disease
  - Persons with HIV infection
  - Persons with end-stage renal disease, including predialysis, hemodialysis, peritoneal dialysis, and home dialysis patients
  - Residents and staff of facilities for developmentally disabled persons
  - Travelers to regions with intermediate or high rates of Hepatitis B (HBsAg prevalence of ≥2%)
  - Unvaccinated adults with diabetes mellitus 19–59 (for those aged ≥60 years, at the discretion of clinician)
  - Anyone else seeking long-term protection

**Vaccination Schedule**
- Infants and children: 3 to 4 doses given over a 6- to 18-month period depending on vaccine type and schedule
- Adults: 3 doses given over a 6-month period (most common schedule)

**Treatment**
- Acute: Antivirals and supportive treatment
- Chronic: Regular monitoring for signs of liver disease progression; new direct acting antiviral medications offer shorter durations of treatment and increased effectiveness, including over 90% of patients who complete treatment are cured

### Hepatitis C

**Serologic Tests**
- No serologic marker for acute infection

**Screening Assay**
- Screening assay (EIA or CIA) for anti-HCV

**Screening Recommendations for Chronic Infection**
- Not applicable—no chronic infection

**Testing is recommended for:**
- Persons born from 1945–1965
- Persons who currently inject drugs or who have injected drugs in the past, even if once or many years ago
- Recipients of clotting factor concentrates before 1987
- Recipients of blood transfusions or donated organs before July 1992
- Long-term hemodialysis patients
- Persons with known exposures to HCV (e.g., healthcare workers after needlesticks, recipients of blood or organs from a donor who later tested positive for HCV)
- HIV-infected persons
- Children born to infected mothers (do not test before age 18 mos.)
- Patients with signs or symptoms of liver disease (e.g., abnormal liver enzyme tests)
- Donors of blood, plasma, organs, tissues, or semen

**Vaccination Recommendations**
- There is no Hepatitis C vaccine

**Vaccination Schedule**
- No vaccine available

Updated 2016