

# The ABCs of Hepatitis

	<b>HEPATITIS A</b> is caused by the Hepatitis A virus (HAV)	<b>HEPATITIS B</b> is caused by the Hepatitis B virus (HBV)	<b>HEPATITIS C</b> is caused by the Hepatitis C virus (HCV)
<b>U.S. Statistics</b>	<ul style="list-style-type: none"> <li>Estimated 2,500 new infections in 2014</li> </ul>	<ul style="list-style-type: none"> <li>Estimated 19,200 new infections in 2014</li> <li>Estimated 850,000–2.2 million people with chronic HBV infection</li> </ul>	<ul style="list-style-type: none"> <li>Estimated 30,500 new infections in 2014</li> <li>Estimated 2.7–3.9 million people with chronic HCV infection</li> </ul>
<b>Routes of Transmission</b>	<p>Ingestion of fecal matter, even in microscopic amounts, from:</p> <ul style="list-style-type: none"> <li>Close person-to-person contact with an infected person</li> <li>Sexual contact with an infected person</li> <li>Ingestion of contaminated food or drinks</li> </ul>	<p>Contact with infectious blood, semen, and other body fluids primarily through:</p> <ul style="list-style-type: none"> <li>Birth to an infected mother</li> <li>Sexual contact with an infected person</li> <li>Sharing of contaminated needles, syringes, or other injection drug equipment</li> <li>Needlesticks or other sharp instrument injuries</li> </ul>	<p>Contact with blood of an infected person primarily through:</p> <ul style="list-style-type: none"> <li>Sharing of contaminated needles, syringes, or other injection drug equipment</li> </ul> <p>Less commonly through:</p> <ul style="list-style-type: none"> <li>Sexual contact with an infected person</li> <li>Birth to an infected mother</li> <li>Needlestick or other sharp instrument injuries</li> </ul>
<b>Persons at Risk</b>	<ul style="list-style-type: none"> <li>Travelers to regions with intermediate or high rates of Hepatitis A</li> <li>Sex contacts of infected persons</li> <li>Household members or caregivers of infected persons</li> <li>Men who have sex with men</li> <li>Users of certain illegal drugs (injection and non-injection)</li> <li>Persons with clotting-factor disorders</li> </ul>	<ul style="list-style-type: none"> <li>Infants born to infected mothers</li> <li>Sex partners of infected persons</li> <li>Persons with multiple sex partners</li> <li>Persons with a sexually transmitted disease (STD)</li> <li>Men who have sex with men</li> <li>Injection drug users</li> <li>Household contacts of infected persons</li> <li>Healthcare and public safety workers exposed to blood on the job</li> <li>Hemodialysis patients</li> <li>Residents and staff of facilities for developmentally disabled persons</li> <li>Travelers to regions with intermediate or high rates of Hepatitis B (HBsAg prevalence of <math>\geq 2\%</math>)</li> </ul>	<ul style="list-style-type: none"> <li>Current or former injection drug users</li> <li>Recipients of clotting factor concentrates before 1987</li> <li>Recipients of blood transfusions or donated organs before July 1992</li> <li>Long-term hemodialysis patients</li> <li>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)</li> <li>HIV-infected persons</li> <li>Infants born to infected mothers</li> </ul>
<b>Incubation Period</b>	15 to 50 days (average: 28 days)	45 to 160 days (average: 120 days)	14 to 180 days (average: 45 days)
<b>Symptoms of Acute Infection</b>	<p><b>Symptoms of all types of viral hepatitis are similar and can include one or more of the following:</b></p> <ul style="list-style-type: none"> <li>Fever</li> <li>Fatigue</li> <li>Loss of appetite</li> <li>Nausea</li> <li>Vomiting</li> <li>Abdominal pain</li> <li>Gray-colored bowel movements</li> <li>Joint pain</li> <li>Jaundice</li> </ul>		
<b>Likelihood of Symptomatic Acute infection</b>	<ul style="list-style-type: none"> <li>&lt; 10% of children &lt; 6 years have jaundice</li> <li>40%–50% of children age 6–14 years have jaundice</li> <li>70%–80% of persons &gt; 14 years have jaundice</li> </ul>	<ul style="list-style-type: none"> <li>&lt; 1% of infants &lt; 1 year develop symptoms</li> <li>5%–15% of children age 1–5 years develop symptoms</li> <li>30%–50% of persons &gt; 5 years develop symptoms</li> </ul> <p><b>Note:</b> Symptoms appear in 5%–15% of newly infected adults who are immunosuppressed</p>	<ul style="list-style-type: none"> <li>20%–30% of newly infected persons develop symptoms of acute disease</li> </ul>
<b>Potential for Chronic Infection</b>	None	<ul style="list-style-type: none"> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>75%–85% of newly infected persons develop chronic infection</li> <li>15%–25% of newly infected persons clear the virus</li> </ul>
<b>Severity</b>	<p>Most persons with acute disease recover with no lasting liver damage; rarely fatal</p>	<ul style="list-style-type: none"> <li>Most persons with acute disease recover with no lasting liver damage; acute illness is rarely fatal</li> <li>15%–25% of chronically infected persons develop chronic liver disease, including cirrhosis, liver failure, or liver cancer</li> <li>1,800 persons in the United States die with HBV-related liver disease as documented from death certificates</li> </ul>	<ul style="list-style-type: none"> <li>Acute illness is uncommon. Those who do develop acute illness recover with no lasting liver damage.</li> <li>60%–70% of chronically infected persons develop chronic liver disease</li> <li>5%–20% develop cirrhosis over a period of 20–30 years</li> <li>1%–5% will die from cirrhosis or liver cancer</li> <li>19,600 deaths in 2014</li> </ul>



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	<b>HEPATITIS A</b>	<b>HEPATITIS B</b>	<b>HEPATITIS C</b>
<b>Serologic Tests for Acute Infection</b>	<ul style="list-style-type: none"> <li>IgM anti-HAV</li> </ul>	<ul style="list-style-type: none"> <li>HBsAg in acute and chronic infection</li> <li>IgM anti-HBc is positive in acute infection only</li> </ul>	<ul style="list-style-type: none"> <li>No serologic marker for acute infection</li> </ul>
<b>Serologic Tests for Chronic Infection</b>	<ul style="list-style-type: none"> <li>Not applicable—no chronic infection</li> </ul>	<ul style="list-style-type: none"> <li>HBsAg (and additional markers as needed)</li> </ul>	<ul style="list-style-type: none"> <li>Screening assay (EIA or CIA) for anti-HCV</li> <li>Verification by an additional, more specific assay (e.g., nucleic acid testing (NAT) for HCV RNA)</li> </ul>
<b>Screening Recommendations for Chronic Infection</b>	<ul style="list-style-type: none"> <li>Not applicable—no chronic infection</li> </ul> <p>Note: Screening for past acute infection is generally not recommended</p>	<p>Testing is recommended for:</p> <ul style="list-style-type: none"> <li>All pregnant women</li> <li>Persons born in regions with intermediate or high rates of Hepatitis B (HBsAg prevalence of <math>\geq 2\%</math>)</li> <li>U.S.–born persons not vaccinated as infants whose parents were born in regions with high rates of Hepatitis B (HBsAg prevalence of <math>\geq 8\%</math>)</li> <li>Infants born to HBsAg-positive mothers</li> <li>Household, needle-sharing, or sex contacts of HBsAg-positive persons</li> <li>Men who have sex with men</li> <li>Injection drug users</li> <li>Patients with elevated liver enzymes (ALT/AST) of unknown etiology</li> <li>Hemodialysis patients</li> <li>Persons needing immunosuppressive or cytotoxic therapy</li> <li>HIV-infected persons</li> <li>Donors of blood, plasma, organs, tissues, or semen</li> </ul>	<p>Testing is recommended for:</p> <ul style="list-style-type: none"> <li>Persons born from 1945–1965</li> <li>Persons who currently inject drugs or who have injected drugs in the past, even if once or many years ago</li> <li>Recipients of clotting factor concentrates before 1987</li> <li>Recipients of blood transfusions or donated organs before July 1992</li> <li>Long-term hemodialysis patients</li> <li>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)</li> <li>HIV-infected persons</li> <li>Children born to infected mothers (do not test before age 18 mos.)</li> <li>Patients with signs or symptoms of liver disease (e.g., abnormal liver enzyme tests)</li> <li>Donors of blood, plasma, organs, tissues, or semen</li> </ul>
<b>Treatment</b>	<ul style="list-style-type: none"> <li>No medication available</li> <li>Best addressed through supportive treatment</li> </ul>	<ul style="list-style-type: none"> <li>Acute: No medication available; best addressed through supportive treatment</li> <li>Chronic: Regular monitoring for signs of liver disease progression; some patients are treated with antiviral drugs</li> </ul>	<ul style="list-style-type: none"> <li>Acute: Antivirals and supportive treatment</li> <li>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</li> </ul>
<b>Vaccination Recommendations</b>	<p>Hepatitis A vaccine is recommended for:</p> <ul style="list-style-type: none"> <li>All children at age 1 year</li> <li>Travelers to regions with intermediate or high rates of Hepatitis A</li> <li>Men who have sex with men</li> <li>Users of certain illegal drugs (injection and non-injection)</li> <li>Persons with clotting-factor disorders</li> <li>Persons who work with HAV-infected primates or with HAV in a research laboratory</li> <li>Persons with chronic liver disease, including HBV- and HCV-infected persons with chronic liver disease</li> <li>Family and care givers of recent adoptees from countries where Hepatitis A is common</li> <li>Anyone else seeking long-term protection</li> </ul>	<p>Hepatitis B vaccine is recommended for:</p> <ul style="list-style-type: none"> <li>All infants at birth</li> <li>Older children who have not previously been vaccinated</li> <li>Susceptible sex partners of infected persons</li> <li>Persons with multiple sex partners</li> <li>Persons seeking evaluation or treatment for an STD</li> <li>Men who have sex with men</li> <li>Injection drug users</li> <li>Susceptible household contacts of infected persons</li> <li>Healthcare and public safety workers exposed to blood on the job</li> <li>Persons with chronic liver disease, including HCV-infected persons with chronic liver disease</li> <li>Persons with HIV infection</li> <li>Persons with end-stage renal disease, including predialysis, hemodialysis, peritoneal dialysis, and home dialysis patients</li> <li>Residents and staff of facilities for developmentally disabled persons</li> <li>Travelers to regions with intermediate or high rates of Hepatitis B (HBsAg prevalence of <math>\geq 2\%</math>)</li> <li>Unvaccinated adults with diabetes mellitus 19–59 (for those aged <math>\geq 60</math> years, at the discretion of clinician)</li> <li>Anyone else seeking long-term protection</li> </ul>	<p>There is no Hepatitis C vaccine</p>
<b>Vaccination Schedule</b>	<p>2 doses given 6 months apart</p>	<ul style="list-style-type: none"> <li>Infants and children: 3 to 4 doses given over a 6- to 18-month period depending on vaccine type and schedule</li> <li>Adults: 3 doses given over a 6-month period (most common schedule)</li> </ul>	<p>No vaccine available</p>