The ABCs of Hepatitis – for Health Professionals

	HEPATITIS A is caused by the hepatitis A virus (HAV)	**HEPATITIS B** is caused by the hepatitis B virus (HBV)	**HEPATITIS C** is caused by the hepatitis C virus (HCV)
U.S. Statistics	• Estimated 24,900 new infections in 2018	• Estimated 21,600 new infections in 2018 • Estimated 862,000 people living with chronic HBV infection in 2016	• Estimated 50,300 new infections in 2018 • Estimated 2.4 million people living with HCV infection in 2016
Routes of Transmission	Fecal-oral route. HAV is transmitted through: • Close person-to-person contact with an infected person • Sexual contact with an infected person • Ingestion of contaminated food or water Although viremia occurs early in infection, bloodborne transmission of HAV is uncommon.	Percutaneous, mucosal, or nonintact skin exposure to infectious blood, semen, and other body fluids. HBV is concentrated most highly in blood, and percutaneous exposure is an efficient mode of transmission. HBV is transmitted primarily through: • Birth to an infected mother • Sexual contact with an infected person • Sharing contaminated needles, syringes, or other injection-drug equipment Less commonly through: • Needle-sticks or other sharp instrument injuries • Organ transplantation and dialysis • Interpersonal contact through sharing items such as razors or toothbrushes or contact with open sores of an infected person	Direct percutaneous exposure to infectious blood. Mucous membrane exposures to blood can also result in transmission, although this route is less efficient. HCV is transmitted primarily through: • Sharing contaminated needles, syringes, or other equipment to inject drugs Less commonly through: • Birth to an infected mother • Sexual contact with an infected person • Unregulated tattooing • Needle-sticks or other sharp instrument injuries
Incubation Period	15–50 days (average: 28 days)	60–150 days (average: 90 days)	14–182 days (average range: 14–84 days)
Symptoms of Acute Infection	**Symptoms of all types of viral hepatitis are similar and can include one or more of the following:** • Jaundice • Fever • Fatigue • Loss of appetite • Nausea • Vomiting • Abdominal pain • Joint pain • Dark Urine • Clay-colored stool • Diarrhea (HAV only)		
Likelihood of Symptomatic Acute Infection	• <30% of children <6 years of age have symptoms (which typically do not include jaundice) • >70% of older children and adults have jaundice	• Most children <5 years of age do not have symptoms • 30%–50% of people ≥5 years of age develop symptoms • Newly infected immunosuppressed adults generally do not have symptoms	• Jaundice might occur in 20%–30% of people • Nonspecific symptoms (e.g., anorexia, malaise, or abdominal pain) might be present in 10%–20% of people
Potential for Chronic Infection after Acute Infection	None	Chronic infection develops in: • 90% of infants after acute infection at birth • 25%–50% of children newly infected at ages 1–5 years • 5% of people newly infected as adults	Chronic infection develops in over 50% of newly infected people

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Continued on next page

	HEPATITIS A	HEPATITIS B	HEPATITIS C
Severity	• Most people with acute disease recover with no lasting liver damage; death is uncommon but occurs more often among older people and/or those with underlying liver disease	• Most people with acute disease recover with no lasting liver damage; acute illness is rarely fatal • 15%–25% of people with chronic infection develop chronic liver disease, including cirrhosis, liver failure, or liver cancer	• Approximately 5%–25% of persons with chronic hepatitis C will develop cirrhosis over 10–20 years • People with hepatitis C and cirrhosis have a 1%–4% annual risk for hepatocellular carcinoma
Serologic Tests for Acute Infection	• IgM anti-HAV	• HBsAg, plus • IgM anti-HBc	• No serologic marker for acute infection
Serologic Tests for Chronic Infection	• Not applicable—no chronic infection	Tests for chronic infection should include three HBV seromarkers: • HBsAg • anti-HBs • Total anti-HBc	• Assay for anti-HCV • Qualitative and quantitative nucleic acid tests (NAT) to detect and quantify presence of virus (HCV RNA)
Testing Recommendations for Chronic Infection	• Not applicable—no chronic infection Note: testing for past acute infection is generally not recommended	• All pregnant women should be tested for HBsAg during an early prenatal visit in each pregnancy • Infants born to HBsAg-positive mothers (HBsAg and anti-HBs are only recommended) • People born in regions with intermediate and high HBV endemicity (HBsAg prevalence ≥2%) • People born in U.S. not vaccinated as infants whose parents were born in regions with high HBV endemicity (≥8%) • Household or sexual contacts of people who are HBsAg-positive • Men who have sex with men • People who inject, or have injected, drugs • Patients with alanine aminotransferase levels (≥19 IU/L for women and ≥30 IU/L for men) of unknown etiology • People with end-stage renal disease including hemodialysis patients • People receiving immunosuppressive therapy • People with HIV • Donors of blood, plasma, organs, tissues, or semen	• All adults aged 18 years and older, at least once • All pregnant women during each pregnancy • People who currently inject drugs and share needles, syringes, or other drug preparation equipment (routine periodic testing) • People who ever injected drugs • People with HIV • People who receive maintenance hemodialysis (routine periodic testing) • People who ever received maintenance hemodialysis • People with persistently abnormal ALT levels • Prior recipients of transfusions or organ transplants, including: - people who received clotting factor concentrates produced before 1987 - people who received a transfusion of blood or blood components before July 1992 - people who received an organ transplant before July 1992 - people who were notified that they received blood from a donor who later tested positive for HCV infection • Healthcare, emergency medical, and public safety personnel after needle sticks, sharps, or mucosal exposures to HCV positive blood • Children born to mothers with HCV infection • Any person who requests hepatitis C testing should receive it

Continued on next page

	HEPATITIS A	HEPATITIS B	HEPATITIS C
Treatment	• No medication available • Best addressed through supportive treatment	• Acute: no medication available; best addressed through supportive treatment • Chronic: regular monitoring for signs of liver disease progression; antiviral drugs are available	• Acute: AASLD/IDSA recommend treatment of acute HCV without a waiting period • Chronic: over 90% of people with hepatitis C can be cured regardless of HCV genotype with 8–12 weeks of oral therapy
Vaccination Recommendations	**Children** • All children aged 12–23 months • Unvaccinated children and adolescents aged 2–18 years **People at increased risk for HAV infection** • International travelers • Men who have sex with men • People who use injection or noninjection drugs • People with occupational risk for exposure • People who anticipate close personal contact with an international adoptee • People experiencing homelessness **People at increased risk for severe disease from HAV infection** • People with chronic liver disease • People with HIV infection **Other people recommended for vaccination** • Pregnant women at risk for HAV infection or severe outcome from HAV infection • Any person who requests vaccination **Vaccination during outbreaks** • Unvaccinated people in outbreak settings who are at risk for HAV infection or at risk for severe disease from HAV **Implementation strategies for settings providing services to adults** • People in settings that provide services to adults in which a high proportion of those people have risk factors for HAV infection	• All infants • All unvaccinated children and adolescents aged <19 years • Sex partners of HBsAg-positive people • Sexually active people who are not in a mutually monogamous relationship • Anyone seeking evaluation or treatment for a sexually transmitted infection • Men who have sex with men • Anyone with a history of current or recent injection-drug use • Household contacts of people who are HBsAg-positive • Residents and staff of facilities for developmentally disabled people • Health care and public-safety personnel with reasonably-anticipated risk for exposure to blood or blood-contaminated body fluids, • Hemodialysis, predialysis peritoneal dialysis, and home dialysis patients • People with diabetes mellitus aged <60 years and people with diabetes mellitus aged ≥60 years at the discretion of the treating clinician • International travelers to countries with high or intermediate levels of endemic HBV infection (HBsAg prevalence of ≥2%) • People living with hepatitis C • People with chronic liver disease (including cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, and an ALT or AST level greater than twice the upper limit of normal) • People living with HIV infection • People who are incarcerated • Pregnant women who are identified as being at risk for HBV infection during pregnancy • Anyone else seeking long-term protection	• There is no hepatitis C vaccine
Vaccination Schedule	• Single-antigen hepatitis A vaccine: 2 doses given 6–18 months apart depending on manufacturer • Combination HepA-HepB vaccine: typically 3 doses given over a 6-month period	• Infants and children: 3–4 doses given over a 6- to 18-month period depending on vaccine type and schedule • Adults: 2 doses, 1 month apart or 3 doses over a 6-month period (depending on manufacturer)	• No vaccine available