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 6,700 new infections in 2017	• Estimated 22,200 new infections in 2017 • Estimated 862,000 people living with chronic HBV infection in 2016	• Estimated 44,700 new infections in 2017 • 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 have symptoms (which typically do not include jaundice) • >70% of older children and adults have jaundice	• Most children <5 years do not have symptoms • 30%–50% of people ≥5 years develop symptoms • Newly infected immunosuppressed adults generally do not have symptoms	• 20%–30% of newly infected people develop symptoms
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 75%–85% of newly infected people

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	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
			• 10%–20% of people with chronic infection will develop cirrhosis 20–30 years after infection
			• People with hepatitis C and cirrhosis have a:
			  • 1%–5% annual risk of hepatocellular carcinoma
			  • 3%–6% annual risk of hepatic decompensation; for these patients risk of death the year following diagnosis is 15%–20%
			• Of the 15%–25% of newly infected people who clear the virus, most will recover with no lasting liver damage

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 3 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	• People born from 1945–1965 • People who inject, or have injected, drugs • Recipients of clotting factor concentrates before 1987 • People who received a blood transfusion or organ transplant before July 1992 • People who were ever on chronic (long-term) hemodialysis • People with persistently abnormal alanine aminotransferase levels • People with known exposure to HCV, such as healthcare, emergency medical, and public safety workers after needle sticks, sharps, or mucosal exposures to HCV-positive blood • People with HIV • Children born to infected mothers USPSTF also recommends testing for: • People who are incarcerated • People who use intranasal drugs • People who get an unregulated tattoo

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	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: treatment of acute HCV may be considered • Chronic: over 90% of people with hepatitis C can be cured regardless of HCV genotype with 8–12 weeks of oral therapy
Vaccination Recommendations	• All children at age 1 year • People experiencing homelessness • People traveling to or working in countries that have high or intermediate endemicity of hepatitis A • Men who have sex with men • People who use or inject drugs • People with clotting-factor disorders • People who work with HAV-infected primates or with HAV in a research laboratory • People with chronic liver disease • Household members and other close personal contacts of recent adoptees from countries with high or intermediate hepatitis A endemicity • People with direct contact with anyone who has hepatitis A • Anyone else seeking long-term protection	• All infants • All unvaccinated children and adolescents aged <19 years • Sex partners of HBsAg-positive persons • 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 • 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