# Hepatitis

## What is hepatitis?

- *Hepatitis* means liver inflammation.
- Most of the time, hepatitis is caused by a viral infection of the liver. The most common types are hepatitis A, B, and C. Other viruses such as cytomegalovirus (CMV) and Epstein-Barr virus (EBV) can also lead to hepatitis. (EBV infection is also known as infectious mononucleosis, or "mono.")
- Viral types of hepatitis are contagious, but the risk of spread and how they are spread vary between types.
- Hepatitis A, EBV infection, and CMV infection are usually transmitted through stool and body fluids such as saliva. Hepatitis B and C are spread by exposure to contaminated blood.
- Hepatitis can also have noninfectious causes such as medications, chemicals, trauma, and certain metabolic diseases. These types of hepatitis are not contagious.
- A noninfectious hepatitis associated with obesity, called NAFLD (*nonalcoholic fatty liver disease),* is increasing.
- Hepatitis can be acute (come and go quickly) or chronic (long-term). Some children with chronic liver disease will need a liver transplant.
- Hepatitis is included in this book because it can become a chronic disease.
- Hepatitis A is usually an acute disease, and children recover. Hepatitis B and C can become more chronic. Cytomegalovirus infection can be recurrent over a long period. Prenatal CMV infection of a fetus can cause severe damage to the brain, sensorineural hearing loss, developmental delay, and damage to other body organs.

## How common is it?

- In the pre-vaccine era, hepatitis A was one of the most commonly reported vaccine-preventable illnesses. However, since the introduction of a highly effective vaccine, the incidence rate of hepatitis A in the United States declined dramatically to 0.4 cases per 100,000 population per year.
- Hepatitis B, also a vaccine-preventable illness, may be transmitted vertically, from infected mothers to their babies, or horizontally, from person to person through contact with infected blood or through sexual contact. Horizontal transmission occurs primarily in adolescents and adults. The recommendation for universal testing of mothers for hepatitis B and universal immunization of children at the time of birth has significantly lowered the incidence rate of hepatitis B in children.

Baby with jaundice

Currently in the United States, there is 1 case per 100,000 population per year.

- The incidence rate of hepatitis C in the United States is estimated at 0.7 per 100,000 population per year. Currently, there is no vaccine against hepatitis C; however, recently approved medications have been very effective in treating the infection. The increase in the incidence rate of hepatitis C is largely caused by the significant increase in injectable drug use; the incidence rate of hepatitis C increased from 2010 to 2013 but not in children.
- Cytomegalovirus infection during childhood is nearly universal. Recurrent episodes of shedding the CMV virus throughout early childhood may occur without symptoms.

## What are some common characteristics of children who have hepatitis or of hepatitis as children present with it?

- People with hepatitis have elevated levels of liver enzymes (aspartate transaminase and alanine transaminase) and bilirubin. High levels of bilirubin will cause people to have a yellow color to the skin (jaundice).
- Children younger than 6 years usually have few or no signs or symptoms. Symptoms are more common in older children and adults.
- Jaundice, which is a yellow tint of the skin or eyes, is a common symptom.
- Other symptoms may include
  - Chronic itchiness
  - Dark-colored urine or clay-colored stools
  - Poor appetite, nausea or vomiting, and stomach pain
  - Less energy, more sleeping, and a low-grade fever

## Who might be on the treatment team?

- Primary care provider in the medical home.
- Pediatric gastroenterologists and infectious diseases specialists may be involved.
- Team communication can be easier when the school or child care staff knows about the hepatitis, but parents/guardians do not have to share information about it.

## Hepatitis (*continued*)

- If parents/guardians share information about hepatitis, it should not be shared with staff without written permission from the parents/guardians. Confidentiality should be respected and the plan for sharing information should be very clear to all.

## What adaptations may be needed?

### Medications

- Do not give any over-the-counter medications such as acetaminophen (eg, Tylenol) and ibuprofen (eg, Motrin) to a child with hepatitis without permission from the health care professional.
- Vaccines that protect against hepatitis A and B are widely available and should be given according to the recommendations of the routine immunization schedule (available online at www.cispimmunize.org, http://redbook.solutions.aap.org, and www.cdc.gov/vaccines/schedules/index.html). Immune globulin against hepatitis A, as well as hepatitis A vaccine, may be recommended in outbreak situations.

### Dietary Considerations

- Because some hepatitis-associated viruses can be spread through saliva, do not let the child share utensils or food from the same plate with another person.
- Strict hygiene precautions are required for infectious hepatitis.
- Eating small portions more frequently or eating high-calorie foods may be necessary, if weight loss is a problem. Drinking plenty of water is helpful.
- Nonalcoholic fatty liver disease, the noninfectious cause of liver disease associated with obesity, may be treated with a lower-calorie diet.

### Physical Environment and Other Considerations

- Adaptations will vary depending on the type of hepatitis, whether it is acute or chronic, and whether it is contagious.
- The child may need to limit activities that could lead to abdominal trauma.
- Standard precautions should be followed when blood or blood-containing fluids are handled (for all children, regardless of hepatitis status). For blood and blood-containing substances, these precautions are the same precautions described by the Occupational Safety and Health Administration as *universal precautions.*
  - Wear disposable gloves or, if using utility gloves, be sure the utility gloves are sanitized after use.
  - Absorb as much of the spill as possible with disposable materials; put the contaminated materials in a plastic bag with a secure tie.
  - Clean contaminated surfaces with detergent and water.
  - Rinse the clean surface with water.
  - Sanitize the clean surface by wetting the entire surface with a disinfectant. See "Appendix J: Selecting an Appropriate Sanitizer or Disinfectant" in *Caring for Our Children: National Health and Safety Performance Standards* at http://cfoc.nrckids.org/files/appendix/AppendixJ.pdf. Health authorities recommend using a stronger solution of freshly diluted bleach (1:10) to disinfect surfaces that involve blood because if hepatitis B is present, the virus is known to be more resistant to being killed by bleach than many other types of infectious agents.
  - Dispose of all soiled items in plastic bags with secure ties.

## What should be considered an emergency?

Call emergency medical services (911) for

- Vomiting of blood
- High fever and abdominal pain or swelling
- Confusion or dramatic change in behavior

## What types of training or policies are advised?

Standard precautions

## What are some resources?

- American Academy of Pediatrics: https://shop.aap.org, 1-866-843-2271—*Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs,* 3rd Edition (book), http://cfoc.nrckids.org/CFOC
  - Standard 7.6.2.1, Infection Control Measures With Hepatitis C Virus (HCV)
  - *Managing Infectious Diseases in Child Care and Schools: A Quick Reference Guide,* 4th Edition (book)
- Centers for Disease Control and Prevention: www.cdc.gov, 1-800-CDC-INFO (1-800-232-4636)
- PKIDs Online: "Hepatitis" (Web page), www.pkids.org/diseases/hepatitis.html

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