

## Hemolytic Uremic Syndrome (HUS)

### What is hemolytic uremic syndrome?

Hemolytic uremic syndrome (HUS) is a rare, life-threatening illness that affects the red blood cells and kidneys. HUS most often occurs after a gastrointestinal infection with *Escherichia coli* O157:H7, a type of Shiga toxin-producing *E. coli* (STEC). About 5-10 percent of people diagnosed with STEC infections develop HUS. The condition has also been linked to other bacterial pathogens known to cause gastrointestinal infections, including *Shigella* and *Salmonella*.

### Who is at risk for HUS?

Anyone can get HUS, but children under five years and the elderly are at higher risk.

### What are the symptoms of HUS?

Symptoms of HUS may include fever, fatigue, irritability, blood in urine, and decreased frequency of urination. A person who is developing HUS may lose pink color in cheeks and inside the lower eyelids. Anemia, low platelet count, and decreased kidney function may also occur.

### How soon do symptoms appear?

Post-diarrheal HUS usually occurs one to two weeks following the onset of diarrhea.

### How is HUS spread?

STEC, *Shigella*, and other organisms that can cause HUS may be spread through consuming contaminated food or water, contact with an infected animal or its environment, or contact with a person who is ill.

### When and for how long is a person able to spread the disease?

HUS cannot be spread from person-to-person, but the bacteria that can cause HUS can be. The length of time a person can spread the bacteria is variable and depends on the type of bacteria.

### How is a person diagnosed?

HUS is diagnosed based on clinical signs and symptoms and the results of several laboratory tests, which may include kidney function, blood clotting factors, and blood counts.

### What is the treatment?

Treatment for HUS is mostly supportive, including management of fluids and electrolytes. Blood transfusions may be necessary if the patient is severely anemic. Dialysis may be required if the patient develops kidney failure.

### Does past infection make a person immune?

No.

## Should children or others be excluded from child care, school, work or other activities if they have HUS?

Yes; most likely, anyone with HUS will be severely ill and require hospitalization.

Please refer to the NDDoH fact sheets for STEC and shigellosis, as these diseases have particular exclusion criteria.

## What can be done to prevent the spread of HUS?

HUS can be prevented by taking the following precautions against the spread of bacterial infections that can lead to HUS:

- Carefully wash hands with soap and clean, running water after using the bathroom or changing diapers and before preparing or eating food. Wash hands after contact with animals or their environments (i.e., farms, petting zoos, fairs).
- Cook ground beef or hamburger thoroughly. Use a thermometer to ensure an internal cooking temperature of at least 160°F is reached.
- If you are served an undercooked hamburger in a restaurant, send it back for further cooking.
- Avoid raw milk, unpasteurized dairy products, and unpasteurized juices.
- Avoid swallowing water when swimming or playing in lakes, ponds, streams and swimming pools.
- Prevent cross contamination in food preparation areas by thoroughly washing hands, counters, cutting boards and utensils after they touch raw meat.

## Additional Information:

Additional information is available at [www.ndhealth.gov/disease](http://www.ndhealth.gov/disease) or by calling the North Dakota Department of Health at 800-472-2180.

**This disease is a reportable condition. As mandated by North Dakota law, any incidence of this disease shall be reported to the North Dakota Department of Health.**

## Resources:

American Academy of Pediatrics. [Children in Out-Of-Home Child Care]. In: Kimberlin DW, Brady MT, Jackson MA, Long SS, eds. *Red Book: 2018 Report of the Committee on Infectious Diseases*. 31st ed. Itasca, IL: American Academy of Pediatrics; 2018:[122-136].

American Academy of Pediatrics. [Escherichia coli Diarrhea (Including Hemolytic-Uremic Syndrome)]. In: Kimberlin DW, Brady MT, Jackson MA, Long SS, eds. *Red Book: 2018 Report of the Committee on Infectious Diseases*. 31st ed. Itasca, IL: American Academy of Pediatrics; 2018:[338-344].

Heymann, D. L. (2015). *Control of Communicable Diseases Manual, 20<sup>th</sup> Edition*. E. coli Diarrheal Diseases. American Public Health Association. 2015: [158-172].

Centers for Disease Control and Prevention. (2015). E. coli. [www.cdc.gov/ecoli/general/index.html](http://www.cdc.gov/ecoli/general/index.html).

U.S. National Library of Medicine. (2018). Hemolytic-uremic syndrome. <https://www.nlm.nih.gov/medlineplus/ency/article/000510.htm>.