



HEMOLYTIC UREMIC SYNDROME (HUS)

What is hemolytic uremic syndrome?

Hemolytic uremic syndrome (HUS) is a rare but serious disease that affects the kidneys and blood clotting functions of infected people. Infection with HUS causes the destruction of red blood cells, which can then cause kidney failure. HUS occurs more commonly in children under 5 years of age than in other age groups. The most common cause of HUS in children under the age of 5 is infection with certain strains of *E. coli* bacteria. *E. coli* refers to a group of bacteria normally found in the intestines of healthy humans and animals.

Who gets hemolytic uremic syndrome?

Anyone can become infected with a certain strains of *E. coli* bacteria that causes diarrhea (loose stools), but young children and the elderly are more likely to develop HUS. HUS usually occurs between the eighth and twelfth day following the onset of diarrhea, although it may occur a few days or several weeks after the diarrheal illness.

How is hemolytic uremic syndrome spread?

HUS from *E. coli* infections results when bacterial toxins cross the intestines into the bloodstream and damage the tiny blood vessels. Common causes of the toxic *E. coli* may come from spoiled food, undercooked foods, poorly processed food products, and exposure to contaminated water.

What are the symptoms of hemolytic uremic syndrome?

The signs and symptoms of HUS may vary, depending on the cause. Most cases are caused by infection with certain strains of *E. coli* bacteria, which first affect the digestive tract. The initial signs and symptoms of this form of HUS may include diarrhea, which is often bloody; abdominal pain, cramping, or bloating; vomiting, and fever.

Damage to the blood vessels causes red blood cells to break down (anemia), blood clots to form in the blood vessels, and kidney damage. Signs and symptoms include:

- Pale coloring, including loss of pink color in cheeks and inside the lower eyelids
- Extreme fatigue
- Shortness of breath
- Easy bruising or unexplained bruises
- Unusual bleeding, such as bleeding from the nose and mouth
- Decreased urination or blood in the urine
- Swelling (edema) of the legs, feet, or ankles, and less often in the face, hands, feet or entire body
- Confusion, seizures, or stroke
- High blood pressure.



How soon do symptoms appear?

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

Should an infected person be excluded from work or school?

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

What is the treatment for hemolytic uremic syndrome?

HUS is generally treated with medical care in the hospital. Lost fluids and electrolytes must be carefully replaced because the kidneys are not removing fluids and waste as efficiently as normal. In about 50% of cases, it may be necessary for the patient to have short-term kidney replacement treatment in the form of dialysis, a procedure that cleanses the kidneys.

What can a person or community do to prevent the spread of hemolytic uremic syndrome?

HUS can be prevented by taking the following precautions:

- Wash hands thoroughly 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 all ground beef or hamburger thoroughly. It should be cooked to a temperature of at least 160 degrees Fahrenheit. It is best to use a thermometer, as color is not a reliable indicator.
- 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 before and after they touch raw meat and poultry.

Resources

North Dakota Department of Health, Division of Disease Control, HUS fact sheet, <https://www.ndhealth.gov/Disease/Documents/faqs/HUS.pdf>

Centers for Disease Control and Prevention, FoodNet Fast: Hemolytic Uremic Syndrome (HUS) Surveillance Tool FAQ, <https://www.cdc.gov/foodnet/foodnet-fast/faq-hus-surveillance.html>

Office of Infectious Disease Epidemiology
24/7 Emergency Contact Number: 1-888-295-5156