

Shiga toxin-producing E. Coli (STEC) & Haemolytic Uraemic Syndrome (HUS)

What are STEC and HUS?

Escherichia coli (*E. coli*) are bacteria that can be found in the intestinal tract of humans and animals. Some types of *E. coli*, such as Shiga toxin-producing *E. coli* (STEC) release a toxin that causes gastroenteritis. Around 5% of STEC cases may develop a sometimes fatal condition called Haemolytic Uraemic Syndrome (HUS), characterised by kidney failure, low platelets and anaemia.

What are the symptoms?

The main symptoms of STEC infection are diarrhoea and abdominal pain. Sometimes the diarrhoea may have blood in it. Symptoms usually begin between 2-10 days after the bacteria are ingested.

The symptoms of HUS may include decreased urine output, reduced consciousness, seizures, bruising and lethargy. If HUS develops it typically occurs around a week after the initial onset of diarrhoea.

How is it spread?

STEC are commonly found in the intestinal tracts of livestock such as cattle and sheep. People become ill after ingesting STEC bacteria, such as from:

Inadequate cooking

STEC can be found in raw meat. When meat (especially beef mince) is not cooked properly the bacteria can survive and infect people who eat it.

Cross contamination

STEC can be spread when uncooked foods already contaminated with the bacteria come into contact with ready to eat foods. Using animal manures to fertilise vegetable gardens can also pose a risk.

Person to person spread

STEC can be spread from one person to another, especially via the hands of someone who is either infected or carrying the organism. Both people and animals can carry STEC in their faeces without showing any symptoms and still pass the infection to others.

What treatment is available?

Non-specific therapy, including hydration is important. Antibiotics are not usually recommended for STEC infections and may increase the risk of developing HUS.

HUS is a serious condition that requires treatment in hospital. Kidney dialysis and blood transfusions are often necessary.

Who is at risk?

Anyone can be infected with STEC but young children, the elderly and those with reduced immunity are more susceptible. Children under 5 years are at greatest risk of HUS following an STEC infection.

Should I be at work/school?

Children should be excluded from childcare, pre-school and school until 24 hours after their last episode of diarrhoea. This also applies to those working in child care, healthcare settings or with the elderly. Food handlers should remain away from work for 48 hours after their last episode of diarrhoea.

How is it prevented?

Proper cooking

Ensure that meat products including, mince, sausages and hamburgers are cooked thoroughly. Avoid eating mince that is still pink.

Food should reach an internal temperature of 75°C to ensure proper cooking.

Susceptible groups such as young children, the elderly and the immune compromised should avoid eating unpasteurised or uncooked meat products such as salami. Untreated water (e.g. from lakes and rivers) should be boiled before use.

Safe food handling and storage

To avoid STEC infection only use clean knives and cutting boards when preparing ready to eat foods, thoroughly wash vegetables and fruits before eating (especially those fertilised with animal manure), when refrigerating raw and ready to eat foods ensure they are separated and covered and always keep kitchen surfaces clean.

Hand washing

Hand washing is a very effective way of preventing cross contamination, person to person and animal to person spread of STEC. Hands should be washed with soap and running water for between 10 -15 seconds.

Need more information?

For more information about STEC infections or HUS, contact your doctor or call the Health Protection Service, Communicable Disease Control Information Line during business hours on **(02) 6205 2155**.

Communicable Disease Control Section at Health Protection Service is

responsible for the investigation and surveillance of notifiable or infectious conditions in the ACT in order to control or prevent their spread in the community. This includes the promotion of immunisation, education and other strategies that help to limit the spread of diseases.

Both STEC infections and HUS are notifiable diseases. Cases notified to ACT Health are investigated by Public Health Officers.

Acknowledgements

1. Heymann DL, 2015, *Control of Communicable Diseases Manual*, 20th edition.
2. Vally H, et al Epidemiology of Shiga toxin producing *Escherichia coli* in Australia, 2000-10. *BMC Public Health* 2012, **12**:63.

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