

Shiga toxigenic Escherichia coli (STEC) Infection and Haemolytic Uraemic Syndrome (HUS)

STEC (also known as VTEC) infection can cause serious disease, including bloody diarrhoea, and sometimes haemolytic uraemic syndrome. Infection usually results from consuming contaminated food or water, or from contact with infected animals or people. Avoid eating undercooked burgers and unpasteurised milk products, and thoroughly wash salad vegetables before eating.

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What is Shiga toxigenic *Escherichia coli* infection?

- *Escherichia coli* (E.coli) are bacteria commonly found in the gastrointestinal tract of people and animals. Many types of *E. coli* are harmless.
- Some types of *E. coli* can produce toxins (Shiga toxins). These are called Shiga toxigenic *E. coli* (STEC) and are sometimes called verocytotoxin producing *E. coli* (VTEC). There are various strains of STEC, e.g., *E. coli* O111 and *E. coli* O157. The outbreak of STEC in Germany in 2011 was caused by a new strain, O104.
- STEC infections cause a diarrhoeal illness.
- Sometimes STEC infections can result in **Haemolytic Uraemic Syndrome (HUS)**.
- HUS is a severe condition characterised by kidney failure, bleeding and anaemia. It can sometimes be fatal.

What are the symptoms?

The symptoms of STEC infection include:

- diarrhoea that may have blood in it
- abdominal cramps
- nausea and vomiting.

Symptoms can last 5 to 10 days. Symptoms can be severe in children, the elderly and people with reduced immunity.

If **HUS** results from the STEC infection, symptoms may include:

- bruising, or a rash of fine red spots
- reduced urination
- reduced consciousness.

Other complications can develop following HUS including long-term kidney damage, high blood pressure and seizures.

How is it spread?

STEC is carried by animals, such as cattle. People are infected when they come into contact with the faeces of an infected animal or person, either directly or indirectly.

STEC is spread through:

- consuming contaminated food (e.g. undercooked burgers, unwashed salad vegetables, and unpasteurised milk or milk products)
- drinking or swimming in contaminated water
- person-to-person contact, for example contact with faeces of an infected person when changing a nappy
- person-to-animal contact on farms or petting zoos, for example contact with cattle that carry the infection.

Who is at risk?

Anyone can be infected but young children and older people are at risk of severe disease. HUS is more common in children.

How is it prevented?

STEC infection is prevented by:

- Safe food storage and food handling:
 - only use clean knives and cutting boards when preparing ready-to-eat foods
 - wash knives and cutting boards in hot water and soap between use
 - cook hamburgers and sausages thoroughly, to at least 71° Celcius. Although colour alone is not necessarily a good indicator, do not eat hamburgers or sausages if there is any pink meat inside
 - thoroughly wash vegetables and fruit before eating
 - do not eat unpasteurised dairy products
- Washing your hands thoroughly with running water and soap for at least 10 seconds. Hands should be washed before eating and preparing food, after touching pets and farm animals and after using the toilet or changing nappies. Children should be assisted to wash their hands properly.

How is it diagnosed?

Diagnosis of STEC infection is made by testing a sample of stool (faeces) for the bacterium or toxin. Blood tests can identify antibodies to the infection. Diagnosis of HUS depends on blood test and examination of the patient.

How is it treated?

- If you have symptoms, see a doctor
- Specific treatment of STEC is not usually necessary
- Antibiotics are not recommended and may be harmful
- Anti-diarrhoeal medicines should be avoided
- HUS is a serious disease that is treated in intensive care units in hospitals. Dialysis and blood transfusions are often required.

What is the public health response?

Doctors, hospitals and laboratories must confidentially notify cases of STEC and HUS to the local public health unit. Public health unit staff will work with the doctor, the patient or the patient's family to identify possible sources of infection. In outbreaks, the public health unit, in collaboration with the NSW Food Authority, will investigate to identify and control the likely source of infection.

For further information please call your local public health unit on 1300 066 055 or visit the New South Wales Health website www.health.nsw.gov.au