Verocytotoxin-producing *Escherichia coli* (VTEC)

- rare cause of severe bacterial infection
- *E. coli* O157 is the most common type
- very young and very old are most vulnerable to infection

Where does it come from?

Most strains of *Escherichia coli* (*E. coli*) are harmless. However, some produce powerful toxins that can cause serious illness. Verocytotoxin-producing *Escherichia coli* (VTEC) has caused a number of outbreaks of food poisoning in the UK.

People are usually infected with *E. coli* O157 bacteria through eating undercooked meat or meat contaminated after cooking. However, there has been an increase in the number of reported outbreaks linked with salads, raw vegetables, unpasteurised milk, cream, cheese and yoghurt. The bacteria can be spread from person to person, particularly in children's daycare centres, hospitals and nursing homes. Direct contact with infected farm animals can also lead to infection.

Symptoms and treatment

VTEC infection causes a range of symptoms including bloody diarrhoea, stomach cramps, headaches, nausea and vomiting. Symptoms normally start 3 – 8 days after infection and last for about a week. In a few cases, infection can lead to haemolytic uraemic syndrome (characterised by kidney failure and severe anaemia), neurological problems and sometimes even death.

Treatment depends on the severity of infection and may include antibiotics. However, the use of antibiotics for treatment of *E. coli* O157 infection has become controversial since a recent study found that it may increase the risk of haemolytic uraemic syndrome (HUS).

Infection control

Prevention or control of infection can be helped by good hygiene practices

- cook food, especially meat, properly
- store cooked and raw food separately
- wash hands
  - before and after eating
  - after going to the toilet
  - after handling animals.

Epidemiology

Most cases of VTEC O157 infection are random. However, outbreaks of VTEC O157 have been recorded in the UK since 1982. Between 1995 and 2000 there have been 106 general outbreaks. The largest outbreak occurred in Central Scotland in 1996, with 279 microbiologically confirmed cases and 20 deaths. The most recent outbreak, of 118 confirmed cases and one death, occurred in South Wales in 2005.

Getting to the bottom of VTEC

Research indicates that almost 10 % of UK herds carry *E. coli* O157. These animals contaminate the local environment and other animals within the herd, as well as meat during slaughter.

Recently, microbiologists have shown that *E. coli* O157 only colonize the final few centimetres of the intestine of cattle, close to the anus. As a result, this pathogen gets onto the surface of faeces as they exit the cow. This information may lead to simple interventions to remove bacteria from colonized animals and prevent spread of the bacteria to humans through the food chain.

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The Society for General Microbiology (SGM) Microbiology Awareness Campaign (MAC) aims to highlight the important issues relating to microbiology. Through its many members, the SGM can offer impartial and expert information on all microbiological topics. Enquiries are welcome. Contact SGM, Marlborough House, Basingstoke Road, Spencers Wood, Reading RG7 1AG (t 0118 988 1830; f 0118 988 5656; e pa@sgm.ac.uk).

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Image: *Escherichia coli*.
Thanks are due to Dr Andrew Roe, University of Glasgow, for his helpful comments on the text.