



E. coli

1. What is zoonotic **E. coli**?

2. EFSA's **role**

3. Scientific **cooperation**

1. What is zoonotic **E. coli**?

- *Escherichia coli* (*E. coli*) is a bacterium that is found in the intestines of healthy humans and animals, and which is part of the normal bacterial flora. However, some *E. coli* strains can cause diseases and lead to serious infection.
- VTEC (verocytotoxin-producing *Escherichia coli*) is a group of pathogenic *E. coli* bacteria that can cause bloody diarrhoea and haemolytic uremic syndrome in humans, a serious condition that can lead to kidney failure and be fatal.
- **People get infected** with VTEC by consuming or handling contaminated food or water or through contact with infected animals. Person-to-person transmission is also possible among close contacts (in families, childcare centres, nursing homes, etc.).

- VTEC strains have been found in raw (unpasteurised) milk and cheese, undercooked beef and a variety of fresh produce (such as sprouts, spinach and lettuce).
- The main source of such strains is cattle. Meat can become contaminated by faecal matter due to poor processing methods during slaughter. Faeces from infected animals can contaminate other foods and water.

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2. EFSA's **role**

EFSA, in collaboration with the European Centre for Disease Prevention and Control (ECDC), helps to protect European consumers from toxigenic strains of *E. coli* by monitoring the prevalence of the bacteria across the region and by conducting risk assessments, such as analysing the role of different foods in the transmission of this infection to humans.

Examples of EFSA's work on *E. coli*:

- **Annual monitoring**
EU-wide data on the presence of *E. coli* in the food chain as well as the prevalence of animal and human infection are collected and analysed in EU Summary Reports prepared by EFSA and ECDC.
- **Response to outbreaks**
A virulent and rare strain of VTEC, O104:H4, caused the 2011 *E. coli* outbreak in France and Germany. EFSA was closely involved in the response to the outbreak and identified the likely source of

the two outbreaks – one lot of fenugreek seeds imported from Egypt and used to produce sprouts – working closely with the European Commission, ECDC, EU Member States, the World Health Organization and the Food and Agriculture Organization.

- **Review of molecular typing methods**
EFSA has reviewed the methods for typing several food-borne pathogens, including *E. coli*, and has evaluated the effectiveness of these methods for:
 - detecting and identifying food-borne outbreaks;
 - estimating the contribution of various sources to food-borne illnesses;
 - predicting which strains of food-borne pathogens may potentially cause epidemics.

Molecular typing methods are laboratory techniques, such as whole genome sequencing, that enable the classification and comparison of strains of disease-causing bacteria.



3. Scientific cooperation

- **EFSA and ECDC** use data collect from individual Member States to monitor and analyse the situation with regard to zoonoses, antimicrobial resistance and food-borne outbreaks in Europe. The results are presented in the annual EU Summary Reports on zoonoses, food-borne outbreaks and antimicrobial resistance and in other reports on specific zoonoses issues.
- EFSA and its **network on zoonoses data collection** work openly and transparently to deliver timely scientific data and analysis of the highest standards to support risk assessors and the policies and

decisions of risk managers. The network comprises representatives of Member States, other reporting countries as well as the European Commission, the World Health Organization, and the World Organisation for Animal Health.

- EFSA's **Panel on Biological Hazards** provides independent scientific advice on biological hazards in relation to food safety and food-borne diseases. The Panel has produced a number of risk assessments concerning VTEC.

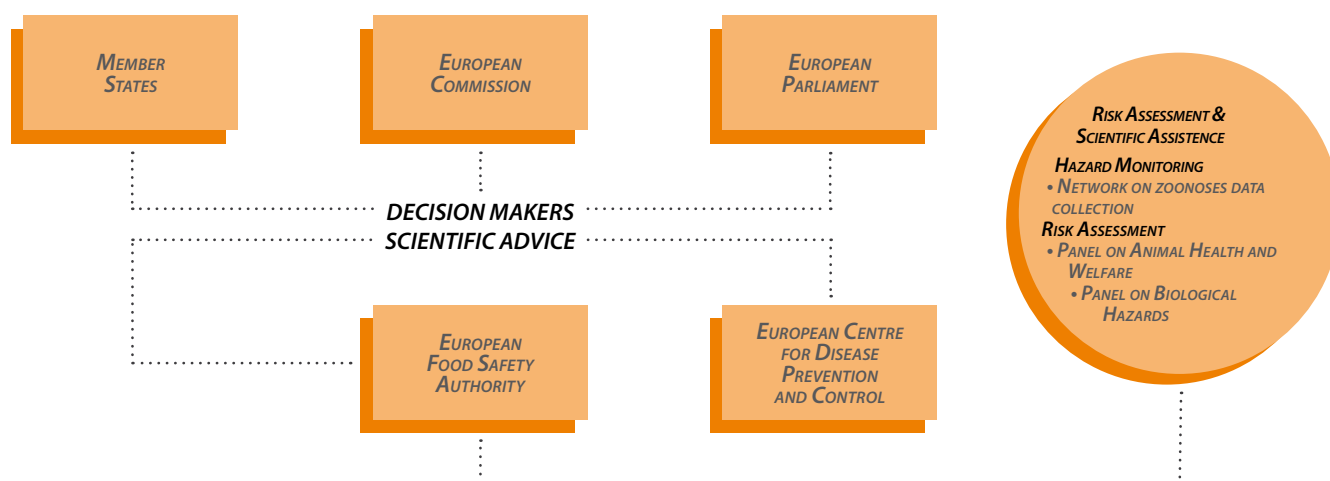


Diagram: EU actors dealing with zoonoses

Did you know?

- About 5,670 confirmed VTEC infections in humans were reported in the European Union in 2012.
- Among animals and foodstuffs, VTEC bacteria were most often reported in cattle and bovine meat.
- Consumers can reduce the risk of falling ill from potentially contaminated food by following good hand hygiene and food handling practices. These include refrigerating foods promptly; regularly washing hands and surfaces such as cutting boards and dishes, separating raw meats from other foods; cooking food to the right temperatures.