

Colibacillosis: Introduction

Escherichia coli (*E. coli*)

Escherichia coli (*E. coli*) bacteria normally live in the intestines of people and animals. Most *E. coli* are harmless and actually are an important part of a healthy human intestinal tract. However, some *E. coli* are pathogenic, meaning they can cause illness, either diarrhea or illness outside of the intestinal tract. The types of *E. coli* that can cause diarrhea can be transmitted through contaminated water or food, or through contact with animals or persons.

E. coli consists of a diverse group of bacteria. Pathogenic *E. coli* strains are categorized into pathotypes. Six pathotypes are associated with diarrhea and collectively are referred to as diarrheagenic *E. coli*.

- Shiga toxin-producing *E. coli* (STEC)—STEC may also be referred to as Verocytotoxin-producing *E. coli* (VTEC) or enterohemorrhagic *E. coli* (EHEC). This pathotype is the one most commonly heard about in the news in association with foodborne outbreaks.
- [Enterotoxigenic *E. coli* \(ETEC\)](#)
- Enteropathogenic *E. coli* (EPEC)
- Enteroaggregative *E. coli* (EAEC)
- Enteroinvasive *E. coli* (EIEC)
- Diffusely adherent *E. coli* (DAEC)

Colibacillosis: Infection with a bacteria called *Escherichia coli*. Infection can cause severe diarrhea or septicemia. The bacteria can also produce toxins which can affect other parts of the body also.

Infections can occur anywhere in the world but some developing countries have endemic areas. *E.*

coli is still a **major pathogen in several animal species**, especially in food producing animals.

Escherichia coli is a **normal inhabitant of the intestinal tract**. However, *E. coli* that harbour virulence genes coding for colonization factors or toxins are pathogenic and may cause among others diarrhoea, septicemia, urinary tract infections and renal failure.

Zoonotic *E. coli* may pass from animals (mainly cattle) to humans and cause disease, whereas they are normal, inoffensive inhabitants of the animal intestinal tract.

Pathogenic *E. coli* in food producing animals constitute a **heterogeneous group of bacteria** of which ETEC, EPEC, STEC, NTEC, RPEC and APEC are considered here.

- **Enterotoxigenic *E. coli* (ETEC)** are defined as causing diarrhoea due to colonization factors (mainly *fimbriae*) and enterotoxins (ST, LT).
- **Enteropathogenic *E. coli* (EPEC)** encode for virulence sequences (*LEE, locus of enterocyte effacement*) that cause characteristic attachment and effacement lesions in the host intestine.
- **Shiga toxin producing *E. coli* (STEC)** excrete complex toxins that are lethal for cells that express the corresponding toxin receptor. In calves STEC (*cytotoxic necrotizing factor*) may cause diarrhoea, whereas in young pigs STEC infection is associated with oedema disease.
- **Necrotising *E. coli*** produce CNF toxin and are often associated with diarrhoea and septicemia in calves.
- **Avian pathogenic *E. coli***, pathogen for poultry
- RPEC: **Rabbit pathogenic *E. coli***

A. The **zoonotic Enterohemorrhagic *E. coli* (EHEC)** are defined as a subset of Shiga toxin-producing *E. coli* (STEC) that are associated with human disease. *E. coli* serogroups O26, O103, O111, O113, O145 and O157 are predominantly linked with **severe renal disease in humans**, called hemorrhagic uremic syndrome.

EHEC infections in humans are commonly due to **direct contact with infected cattle** or to **contaminated, poorly**



heat treated meat or milk originating from infected animals.

The animals excrete the pathogen without showing any clinical symptom. However, EHEC infected patients suffer from **abdominal pain** or **watery diarrhoea** and symptoms can become more severe, including bloody diarrhoea, hemorrhagic colitis (HC) and haemorrhagic uremic syndrome (HUS). **Especially in young children and elder people the infection is life threatening.**

Risk analysis showed that the possible cross-contamination of the **carcasses of cattle at the slaughterhouse** is a critical point for *E. coli* O157 and other EHEC to enter the food chain.

Transmission can occur contaminated animal products or contact with infected cats and dogs.

Symptoms of Colibacillosis

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The list of signs and symptoms mentioned in various sources for [Colibacillosis](#) includes the 10

symptoms listed below:

- [Profuse diarrhea](#)
- [Watery diarrhea](#)
- [Abdominal pain](#)
- [Vomiting](#)
- [Acidosis](#)
- [Dehydration](#)
- Mucus in diarrhea
- [Bloody diarrhea](#)
- [Septicemia](#)
- of eating food from an animal infected with an infectious agent, or from food that is contaminated from the food handler (who is infected with Colibacillosis), or from contaminated soil or water, or from toxins produced by an infectious organism.
- of an infectious agent.