



Symptoms, Transmission, Control and Prevention of *E Coli*

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DESCRIPTION

Bacteria known as *Escherichia coli* (*E.coli*) are present in food, the environment, and the intestines of both people and animals. The bacteria *E.coli* come in a wide variety. Normally, this bacterium does not cause harm. It makes food digesting easier. However, some strains of *E.coli* can cause symptoms including diarrhea, stomach-aches, and a low-grade fever. Despite the fact that many people only link *E.coli* with food poisoning; different strains of the bacteria can also result in pneumonia and urinary tract infections. In actuality, *E.coli* is the root cause of 75 to 95 percent of urinary tract infections. A typical bowel resident that enters the urine tract is *E.coli*.

SYMPTOMS

- Cramps and stomach-aches.
- Diarrhea that can be anything from bloody to watery.
- Fatigue.
- Anorexia or loss of appetite.
- Minor fever
- Vomiting

TRANSMISSION OF *E.COLI*

- Water-to-Person: Waterborne disease can spread through contaminated drinking water and recreational waters (lakes, ponds, streams, and swimming pools).
- Person-to-Person: Individuals who are ill and experiencing vomiting and diarrhea may require care from their families, day-care centers, or institutions under their guardianship.
- Food-to-Person: Eating or drinking something that has been touched by a sick person who failed to properly wash their hands, or drinking contaminated raw milk or juice.
- Surface-to-Person: Interaction with a surface or object that has come into direct contact with an individual who is ill or that is positioned in a place.

CONTROL AND PREVENTION

Wash the hands properly with soap, rinse carefully. Avoid cross contamination i.e. spreading bacteria from a raw food item to a ready-to-eat or cooked food item. Avoid swallowing water when swimming or playing in lakes, ponds, streams, or swimming pools. Cook meats thoroughly. Drink only pasteurized milk products.

RESISTANCE TO DRUGS

In addition to ampicillin and tetracycline resistance, TMP/SMX and fluoroquinolone resistance in *E.coli* has increased. Additionally, multidrug-resistant bacteria that generate Extended-Spectrum Beta-Lactamases (ESBLs) have become a significant contributor to sepsis and community-acquired UTI. Most beta-lactams, including penicillin's, broad-spectrum cephalosporins, and monobactams, can be hydrolysed by ESBLs. Additionally, AmpC beta-lactamases, serine carbapenemases, and metallo-carbapenemases are among the resistance genes that *E.coli* has gained. In addition to AmpC, tetracycline drugs and cefiderocol (an injectable siderophore cephalosporin) are effective against strains that produce ESBLs.

Many different antimicrobial substances can effectively stop *E.coli* from growing. *E.coli* infections are frequently treated with β -lactams, fluoroquinolones, aminoglycosides, and trimethoprim-sulfamethoxazole in both hospitals and the general public. By attaching to and blocking the penicillin-binding proteins necessary for transpeptidation and carboxypeptidation processes in cell wall peptidoglycan formation, β -lactams interfere with the creation of cell walls. Fluoroquinolones encourage DNA gyrase-mediated double-stranded DNA and prevent DNA supercoiling. The 50S subunit of the 70S bacterial ribosomes binds to the aminoglycosides in an irreversible manner. By inhibiting tetrahydropteridic acid synthases and dihydrofolate reductase, respectively, sulfonamides and trimethoprim prevent bacterial folic acid production.

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