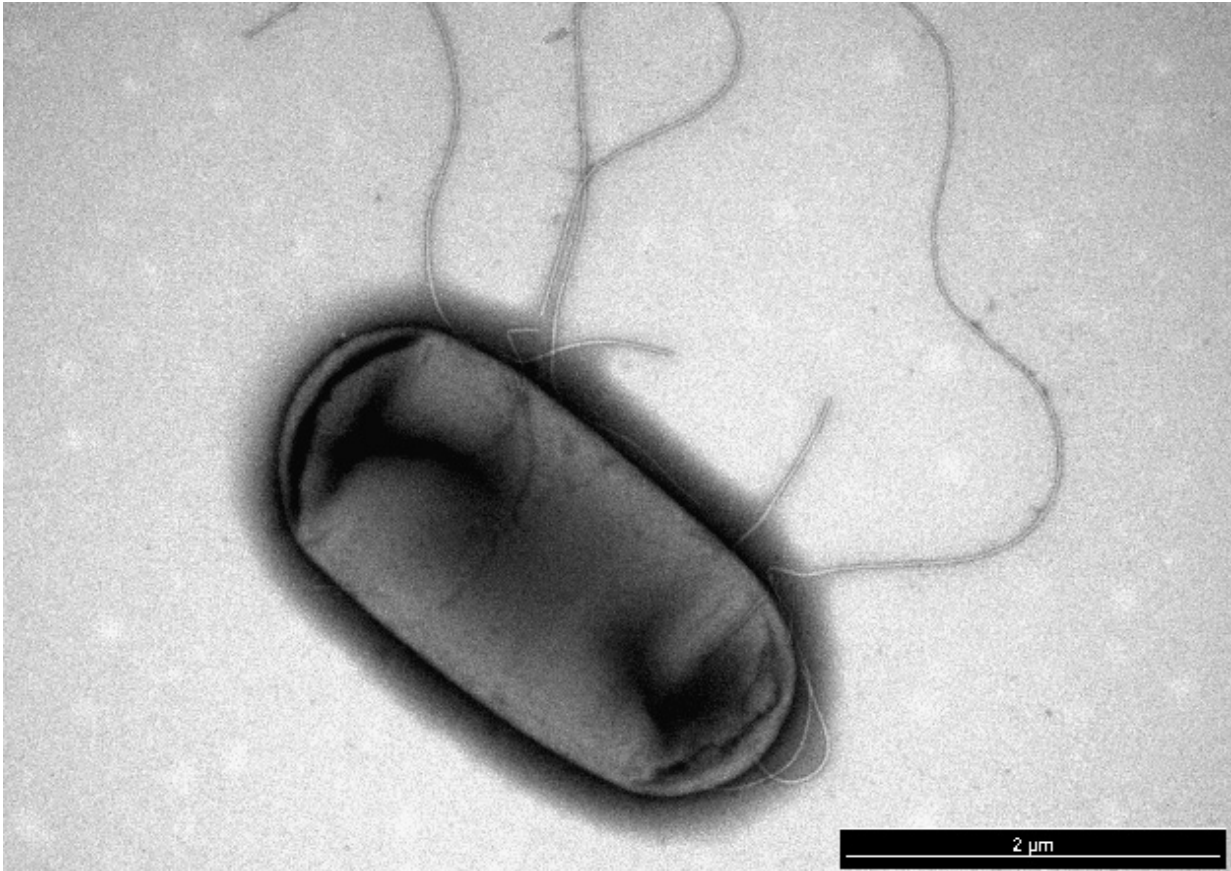# What you need to know about E. coli

January 8 2016

Transmission electron micrographs of E. coli, one of the kinds of bacteria that can be made resistant to antibiotics by a superbug gene known as MCR-1. Credit: Brian Coombes Laboratory, McMaster University

A new drug-resistant superbug gene has been discovered in meat sold in Ontario.

The gene - known as MCR-1 - makes bacteria invincible to colistin, an antibiotic used only when all other drugs have failed.

A likely source of the superbug is the [agricultural industry](#), which in 2015 used nearly 12,000 tonnes of the drug around the world.

The number is expected to rise to 16,500 tonnes by 2021.

McMaster microbiologist Gerry Wright, director of the Michael G. DeGroote Institute for Infectious Disease Research, called that number "insane."

"Any antibiotic class used for humans should never be used for animals (unless they're sick," he told the Toronto Star. "I just find it absolutely mind-boggling that we're going into 2016 and we're still having this discussion."

One of the types of bacteria MCR-1 can grant resistance to is E. coli, a large and diverse group of bacteria found in the intestines of humans and animals.

Learn about the [bacteria](#) below:

E. coli:
What you need to know

What is E. coli?

Escherichia coli, commonly known as *E. coli*, are a large and diverse group of bacteria found in the intestines of humans and animals.

Most strains of *E. coli* are harmless. However, some strains, such as *E. coli* O157: H7, can make people very sick.

Causes

Improperly cooked beef;

Uncooked vegetables;

Untreated drinking water;

Unpasteurized milk and milk products;

Transmitted from person-to-person through the fecal-oral route.

Symptoms

Severe stomach cramps;

Diarrhea;

Vomiting;

Fever (38.5°C/101°F);

Dehydration

Typically, adults are infectious for about **1** week. Children, on the other hand, can be infectious for up to **3** weeks.

Who's at risk?

Infections can occur in people of all ages. However, symptoms are most severe in very young children and the elderly. People with compromised immune systems are also at risk of developing severe complications.

Treatment

Some strains of pathogenic *E. coli* contain toxins. These strains are not treatable with current antibiotics. For the best course of treatment, please see your healthcare provider.

Prevention

Created by Maple Zhang
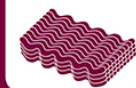
| Wash your hands thoroughly | Refrigerate or freeze perishable foods within 2 hours of cooking | Wash fresh fruits and vegetables before eating | Thoroughly cooking meat, especially ground beef, can destroy *E. coli* bacteria. Ground beef should be cooked until it is no longer pink and juices run clear | Keep cold foods at or below 4°C (40°F). Keep hot foods at or above 60°C (140°F) |

Provided by McMaster University

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