

A Complex Web: Everything is Connected Food, Farms, & Animals

Animals, like people, carry germs in their gut, including antibiotic-resistant germs. The U.S. food supply is among the safest in the world, but these germs can get into the food supply and people can get sick.



- ◀ When animals are slaughtered and processed for food, germs in the animal gut, including resistant germs, can contaminate meat or other animal products.
- ◀ People can get sick from eating or handling contaminated food or from contact with animals or their surroundings.
- ◀ Antibiotics save lives. However, any time antibiotics are used, the drugs contribute to the development of antibiotic resistance.
- ◀ Animal waste (poop) can carry traces of previously consumed antibiotics and antibiotic-resistant germs. Sometimes animal waste is used as fertilizer on farms.
- ◀ Food, such as fruits and vegetables, can become contaminated through contact with soil or water containing waste from animals.
- ◀ Antibiotics and antifungals are sometimes applied as pesticides to manage crop diseases. This may speed up the development and spread of resistant germs by contaminating surrounding soil and water.
- ◀ Stormwater and irrigation water from farmland can contaminate nearby lakes and rivers.



Learn more about CDC's
AR Solutions Initiative:
www.cdc.gov/DrugResistance

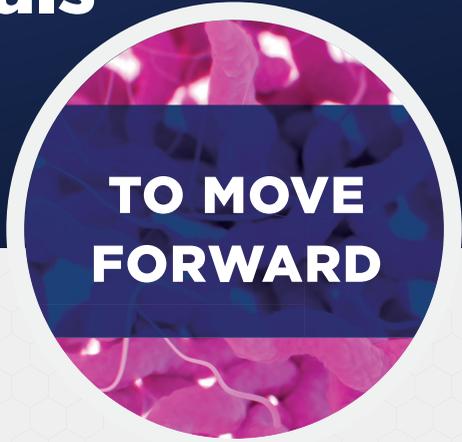
Scan with your smartphone camera to watch a video on how
CDC & partners are protecting humans & animals



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

CDC Fights Antibiotic Resistance (AR) in Food, Farms, & Animals

The United States is positioned for a better and faster response to AR because of the strategic leadership and investment of CDC's AR Solutions Initiative, which invests in national infrastructure to detect, respond, contain, and prevent resistant infections across healthcare, food, and community settings.



**TO MOVE
FORWARD**

CDC ACTIVITIES

Increase Laboratory Capacity

- **Identifying foodborne antibiotic-resistant bacteria** in all 50 states using whole genome sequencing, allowing for routine surveillance to predict antibiotic resistance.
- Protecting communities by **stopping antibiotic resistant bacteria** that cause foodborne outbreaks.
- Using outbreak data to increase understanding of foodborne resistance to **improve food safety**.

Support Innovation with Partners

- Providing **veterinarians and food animal producers** tools, information, and training around antibiotic use and infection prevention.
- Collaborating with food animal producers to ensure **optimal antibiotic use**.
- Identifying gaps in knowledge related to resistance, the environment, and human and animal health to **implement new ways to prevent antibiotic-resistant infections** and their spread.

Strengthen Data Across One Health

- **Expanding tracking** of AR data from animals, farms, and production facilities.
- Establishing new ways to **collect AR data from the environment**, including water and soil, to better understand its impact on human health.
- Supporting research to better understand and improve the use of **diagnostics in veterinary care**.

In the next five-year National Action Plan to Combat AR (CARB), CDC aims to:

- **Double state and local AR infrastructure.** Slow the emergence of resistant bacteria and prevent the spread of resistant infections
- **Develop a Center of Excellence for Whole Genome Sequencing** to increase sequencing for foodborne pathogens and other AR threats
- **Expand domestic capacity to fight AR** in the environment across food, water, and the community

CDC IN ACTION

- Each year CDC's National Antimicrobial Resistance Monitoring System (NARMS) performs **whole genome sequencing on tens of thousands of isolates** (pure samples of germs) for fast identification of AR outbreaks and to track overall trends in resistance.
- **During multistate outbreaks, CDC shares whole genome sequencing data with state, local, and federal agencies** through the System for Enteric Disease Response, Investigation, and Coordination (SEDRIC) information technology platform.
- **CDC provides funding and technical assistance to many One Health projects** led by state partners that examine appropriate antibiotic use and primary causes of the spread of resistant bacteria in people and animals.



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