

Outbreak of Multidrug-resistant *Campylobacter* Infections Linked to Contact with Pet Store Puppies

Final Update



Investigation Notice

Published on April 15, 2021

This investigation is over. CDC continues to work with state public health officials to monitor for new illnesses. Although the investigation is over, people can still get a *Campylobacter* infection from dogs. Always take steps to stay healthy around your dog. CDC and public health officials in several states investigated a multistate outbreak of multidrug-resistant *Campylobacter jejuni* infections linked to contact with pet store puppies.

Final Outbreak Information

At A Glance

- [Reported Cases](#): 56
 - [States](#): 17
 - Hospitalizations: 9
 - Deaths: 0
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- From January 9, 2019, through March 1, 2021, a total of 56 people infected with the outbreak strain of *Campylobacter jejuni* were reported from 17 states.
 - 9 people were hospitalized; no deaths were reported.
 - [Epidemiologic and laboratory evidence](#) showed that contact with puppies, especially those at pet stores, was the likely source of this outbreak.
 - 38 (93%) of 41 ill people reported contact with a puppy before getting sick.
 - 21 (55%) of these 38 people reported contact with a puppy from a pet store.
 - 13 (62%) of these 21 people had a link to Petland, a national pet store chain.
 - 5 (38%) of these 13 people were Petland employees.
 - The outbreak strain was identified in samples collected from two puppies in the homes of ill people, one in Iowa and one in Minnesota. Both puppies were purchased from pet stores.
 - Laboratory evidence showed that bacteria from ill people were closely related genetically to bacteria from ill people in the [2016–2018 outbreak of multidrug-resistant *Campylobacter* infections linked to pet store puppies](#).

- *Campylobacter* bacteria isolated from clinical samples from ill people were resistant to commonly recommended, first-line antibiotics. For more information, see CDC's [Advice to Clinicians](#).
- This outbreak investigation is over. CDC continues to work with state public health partners to monitor for new infections, take steps to prevent illnesses, and report scientific findings.

Advice to Pet Owners

Dogs can carry *Campylobacter* germs that can make people sick, even if they look healthy and clean.

Take these steps to [stay healthy around your dog](#):

- **Wash your hands**
 - Always [wash hands](#) thoroughly with soap and water right after touching your dog, after handling their food, and after cleaning up after them.
 - Adults should make sure young children are washing their hands properly.
 - If soap and water are not readily available, use [hand sanitizer](#) until you are able to wash your hands with soap and water.
- **Play safely**
 - Don't let dogs lick around your mouth and face.
 - Don't let dogs lick your open wound or areas with broken skin.
- **Keep things clean**
 - Clean up any pee, poop, or vomit inside the house immediately. Then disinfect the area using a [water and bleach solution](#).
- **Monitor your dog's health**
 - Take your dog to the veterinarian regularly to keep it healthy and to prevent the spread of disease.
 - Only give your dog antibiotics when prescribed by the veterinarian and according to instructions.

If you are thinking of getting a pet dog:

- Choose a dog that is bright, alert, and playful.
- Take your dog to a veterinarian for a health check-up within a few days after getting it.
- Be aware that even a dog that appears healthy can spread germs to people and other animals.
- If your dog becomes sick soon after purchase or adoption, take your dog to a veterinarian promptly and inform the pet store, breeder, or rescue organization about the illness or death. Thoroughly clean the area your dog lived in using a [water and bleach solution](#).

Advice to Pet Store Workers

Dogs can carry *Campylobacter* germs that can make people sick, even if they look healthy and clean. People who handle dogs should take steps to stay healthy around these animals.

Ask store management for training about handwashing, clean-up procedures, and other illness prevention measures.

Wash your hands with soap and water after handling dogs.

- [Wash your hands](#) thoroughly with soap and water every time you handle dogs or anything in the area where they live and roam, including their food, treats, and food and water containers. Even a dog that appears healthy can spread germs to people and other animals.
- Wash your hands immediately after cleaning up dog pee, poop, or vomit.
- Dry hands using a clean paper towel or air-dry them.

Eat and store your food safely at the workplace.

- Wash your hands thoroughly before eating.
- Eat and drink in designated areas away from places where animals are kept and exercised.
- Keep your food away from areas where pet food and treats are stored, and away from areas where animals are kept or exercised.
- If a separate refrigerator isn't available for pet food, store food for people on top shelves, above food, treats, and other supplies for pets.

Clean up messes safely.

- Clean up any pee, poop, or vomit immediately, and disinfect the area according to store protocols.
- Use disposable gloves for clean-ups and wash your hands thoroughly afterwards.
- Wash work shoes or boots, clothes, and equipment regularly, and do so in an area that is not used to store or prepare food for people.
- If possible, do not wear shoes or boots that you wear at the workplace in your home or when you go anywhere else.

Follow store protocols for identifying and reporting sick or injured animals.

Let your employer know if you or other employees become ill, especially with diarrhea or vomiting.

If you are in management, practice responsible use of antibiotics in pet stores. Antibiotics save human and animal lives. But, when antibiotics are used, they can lead to side effects and antibiotic resistance.

- Only give antibiotics to animals under the direct supervision of a veterinarian.
- Assure that veterinarians use appropriate diagnostic tests to ensure that antibiotics are needed and that animals receive the right treatment.
- Monitor and document antibiotic use.
- Tell breeders, brokers, and transporters who supply animals to your store about responsible use of antibiotics and the benefits of veterinary supervision of antibiotic use.
- Check with your local or state health department for guidance on reporting sick animals.

Symptoms of *Campylobacter* Infection

- Most people infected with *Campylobacter* develop diarrhea (often bloody), fever, and stomach cramps 2 to 5 days after being exposed to the bacteria.
- The illness usually lasts about a week and most people recover without antibiotic treatment.
- Antibiotics are needed only for patients who are very ill or at high risk for severe disease, such as people with severely weakened immune systems.

Investigation Details

April 15, 2021

CDC and public health officials in several states investigated a multistate outbreak of multidrug-resistant human *Campylobacter jejuni* infections linked to contact with puppies from pet stores.

Public health investigators used the [PulseNet](#) system to identify illnesses that may be part of this outbreak. PulseNet is the national subtyping network of public health and food regulatory agency laboratories coordinated by CDC. DNA fingerprinting is performed on *Campylobacter* bacteria isolated from ill people by using a standardized laboratory and data analysis method called [whole genome sequencing](#) (WGS). PulseNet manages a national database of these sequences that are used to identify possible outbreaks. WGS gives investigators detailed information about bacteria causing illness.

In this investigation, WGS showed that *Campylobacter* bacteria from people were genetically related to each other. This means that people were likely to have a common source of infection. WGS also showed that bacteria from these people were related genetically to those in [a 2016–2018 outbreak of multidrug-resistant *Campylobacter* infections linked to pet store puppies](#).

From January 9, 2019, through March 1, 2021, a total of 56 people infected with the outbreak strain of *Campylobacter* were reported from 17 states.

Illnesses started on dates ranging from [January 6, 2019, through January 2, 2021](#). Ill people ranged in age from 2 months to 84 years, with a median age of 40. Seven ill people were children younger than 5. Of all ill people, 55% were female. Of 46 ill people with information available, 9 (20%) were hospitalized. No deaths were reported.

WGS predicted that bacteria from 56 ill people and 2 dogs are resistant to the following antibiotics: tetracycline (58 samples), ciprofloxacin (53), nalidixic acid (53), azithromycin (52), erythromycin (52), clindamycin (52), telithromycin (52), and gentamicin (49). Testing of 19 samples of bacteria using standard [antibiotic susceptibility testing](#) methods by CDC's [National Antimicrobial Resistance Monitoring System \(NARMS\)](#) laboratory confirmed these results. For more information, see CDC's [Advice to Clinicians](#).

Investigation of the Outbreak

[Epidemiologic and laboratory evidence](#) showed that puppies purchased from pet stores were the likely source of this outbreak. Many of the ill people had contact with puppies or were employees at pet stores, including Petland.

In interviews, ill people answered questions about animal contact in the week before they got sick. Of 41 people interviewed, 38 (93%) reported contact with a puppy before getting sick, and 21 (55%) of those 38 people reported contact with a puppy from a pet store. When asked about the specific pet store, 13 (62%) of those 21 people reported either having contact with a puppy or working at a Petland store. A single, common supplier of puppies was not identified as the source of this outbreak.

The outbreak strain was identified in samples collected from two puppies in the homes of ill people, one in Iowa and one in Minnesota. Both puppies were purchased from pet stores.

The data collected as part of this investigation suggest that this strain may be commonly found in dogs and puppies and that infections from this strain of *Campylobacter* are likely to continue to occur because the source persists. Dog breeders and pet store staff can help reduce the spread of this antibiotic-resistant strain by using infection control practices and following guidance on the use of antibiotics.

This investigation is over. CDC continues to work with state public health officials to monitor for new infections, take steps to prevent illnesses, and report scientific findings.