

Outbreak of Multidrug-Resistant *Salmonella* Infections Linked to Contact with Pig Ear Pet Treats

Final Update



Investigation Notice

Published on October 30, 2019 at 12:00 PM ET

This outbreak appears to be over. Always wash your hands after handling any pet treats or pet food. Read more about [feeding pets safely](#).

CDC, public health and regulatory officials in several states, and the [U.S. Food and Drug Administration \(FDA\)](#)[external icon](#) investigated a multistate outbreak of multidrug-resistant *Salmonella* infections linked to contact with pig ear pet treats.

Final Outbreak Information

At A Glance

- [Reported Cases](#): 154
 - [States](#): 34
 - Hospitalizations: 35
 - Deaths: 0
 - Recall: Yes
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- As of October 30, 2019, CDC and FDA have dropped their warning to avoid buying or feeding any pig ear pet treats, except for treats that have already been recalled.
 - Do not feed any recalled pig ears to dogs.
 - Always wash your hands right after feeding any pig ears treats to your dogs.
 - 154 people infected with the outbreak strains of *Salmonella* were reported from 34 states.
 - Of 133 ill people with available information, 35 (26%) were hospitalized. No deaths were reported.
 - 27 illnesses (19%) were among children younger than 5 years.

- [Epidemiologic, laboratory, and traceback](#) evidence indicated that contact with pig ear pet treats from many different suppliers was the likely source of this outbreak.

Advice to Pet Owners

- **Wash your hands.**
 - Always wash your hands thoroughly with soap and water right after handling pig ear treats, other pet treats, and pet food.
- **Keep kids safe.**
 - Keep pig ear treats away from children.
 - Pick up treats when your pet is done with them.
- **Shop safely.**
 - Always wash your hands thoroughly with soap and water after touching unpackaged dog food or treats, including products in bulk bins or on store shelves.
- **Do not feed any recalled pig ear treats to your dog. Throw them away or return them to the store where you bought them for a refund.**
 - Even if some of the recalled pig ear treats were fed to your dog and no one got sick, do not continue to feed them to your dog.
 - Wash containers, shelves, and areas that held any pig ears with hot, soapy water. Be sure to wash your hands after handling any of these items.
- **How can I report my dog's illness if I think it's related to pig ear treats?**
 - FDA encourages consumers to report complaints about pet food products electronically through the Safety Reporting Portal.
- **See CDC's Pet Food Safety webpage for more tips on staying healthy while feeding pets.**

Advice to Pet Stores and Retailers Selling Pig Ear Treats

- **Importers, suppliers, distributors, wholesalers, and other retailers should not sell any recalled pig ear treats.**
 - Remove recalled pig ear treats from retail. This includes bulk bin and individually wrapped pig ear treats.
- **Retailers who start selling pig ears again should take steps to prevent *Salmonella* contamination.**

- For more information, see FDA's Questions and Answers for retailers, distributors, importers, suppliers, and manufacturers.

Recalls

Several companies recalled pig ear pet treat products because they might be contaminated with one or more of the outbreak strains of *Salmonella*. For more information on the recalls please see the FDA's investigation website.

Symptoms of *Salmonella* Infection

- Most people infected with *Salmonella* develop diarrhea, fever, and stomach cramps 12 to 72 hours after being exposed to the bacteria.
- The illness usually lasts 4 to 7 days, and most people recover without treatment.
- In some people, the illness may be so severe that the patient needs to be hospitalized. *Salmonella* infection may spread from the intestines to the bloodstream and then to other places in the body.
- Children younger than 5 years, adults 65 years and older, and people with weakened immune systems are more likely to have a severe illness.

Investigation Details

October 30, 2019

CDC, public health and regulatory officials in several states, and the US FDA Center for Veterinary Medicine investigated a multistate outbreak of multidrug-resistant human *Salmonella* infections linked to contact with pig ear pet treats. *Salmonella* strains included were Cerro, Derby, London, Infantis, Newport, Rissen, and I 4,[5],12:i:-.

Public health investigators used the [PulseNet](#) system to identify illnesses that may have been 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 *Salmonella* bacteria isolated from ill people by using a standardized laboratory and data analysis method called [whole genome sequencing](#) (WGS). CDC PulseNet manages a national database of these sequences that are used to identify possible outbreaks. WGS gives investigators detailed information about the bacteria causing illness. In this investigation, WGS showed that bacteria isolated from ill people were closely related genetically. This

means that people in this outbreak were more likely to share a common source of infection.

A total of 154 people infected with the outbreak strains of *Salmonella* were reported from 34 states.

Illnesses started on dates ranging from [June 10, 2015, to September 13, 2019](#). Ill people ranged in age from less than 1 year to 90 years, with a median age of 40 years. Seventy (45%) ill people were female. Of 133 ill people with information available, 35 (26%) were hospitalized. No deaths were reported.

[Whole genome sequencing](#) (WGS) was conducted to identify any [predicted antibiotic resistance](#) in 110 isolates from ill people and 102 isolates from pig ear treat samples. A total of 164 isolates had predicted antibiotic resistance or decreased susceptibility to one or more of the following antibiotics: amoxicillin-clavulanic acid (<1% of 164 isolates), ampicillin (53%), azithromycin (<1%), cefoxitin (<1%), ceftriaxone (<1%), chloramphenicol (33%), ciprofloxacin (50%), fosfomycin (2%), gentamicin (27%), kanamycin (2%), nalidixic acid (26%), streptomycin (33%), sulfisoxazole (30%), tetracycline (58%), and trimethoprim-sulfamethoxazole (27%). No antibiotic resistance was predicted for 48 (23%) isolates. Testing of 13 clinical isolates using standard [antibiotic susceptibility testing](#) methods by CDC's [National Antimicrobial Resistance Monitoring System \(NARMS\)](#) laboratory provided comparable results (fosfomycin and kanamycin were not tested by this method). If antibiotics were needed, infections related to this outbreak may have been difficult to treat with some commonly recommended antibiotics, and may have required a different antibiotic choice.

Investigation of the Outbreak

[Epidemiologic, laboratory, and traceback](#) evidence indicated that contact with pig ear pet treats was the likely source of this outbreak.

In interviews, ill people answered questions about a variety of exposures, including animal and pet food contact in the week before they became ill. Of 128 ill people, 107 (84%) reported contact with a dog before getting sick. Of 94 people with available information, 62 (66%) reported contact with pig ear treats or with dogs who were fed pig ear treats. Both of these proportions were significantly higher than the results from a [survey.pdf icon\[PDF – 787 KB\]](#) of

healthy people who reported contact with dogs (61%) or handling dog treats (16%), such as pig ear treats, in the week before interview.

Testing of pig ear treats identified the outbreak strains of *Salmonella* in 135 samples. Some of the pig ear treats were imported from Argentina, Brazil, and Colombia. Some product labels indicated that the pig ear treats were irradiated. When properly conducted, the irradiation process should kill any *Salmonella* present on the pig ear treats. Finding *Salmonella* in products labeled as irradiated indicate they may not have been irradiated, they were not effectively irradiated, or there was another issue that caused *Salmonella* contamination. FDA continues to investigate the manufacturing process and has posted answers to frequently asked questions from members of the pig ear pet supply chain (manufacturers, suppliers, importers, distributors, retailers) regarding *Salmonella* control in these products.

Several firms recalled pig ear treats during the investigation because they were contaminated with *Salmonella*. No single supplier, distributor, or common brand of pig ear treats was identified.

As of October 30, 2019, the outbreak appears to be over.