

Outbreak of Multidrug-Resistant *Salmonella* Infections Linked to Raw Turkey Products

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CDC and public health and regulatory officials in several states are investigating a multistate outbreak of multidrug-resistant *Salmonella* infections linked to raw turkey products. The U.S. Department of Agriculture's Food Safety and Inspection Service (USDA-FSIS) is monitoring the outbreak.

Latest Outbreak Information

At A Glance

- [Reported Cases](#): 216
 - [States](#): 38
 - Hospitalizations: 84
 - Deaths: 1
 - Recall: Yes
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- Since the last update on November 8, 2018, 52 ill people from 26 states and the District of Columbia have been added to this investigation.
 - As of December 18, 2018, 216 people infected with the outbreak strain of *Salmonella* Reading have been reported from 38 states and the District of Columbia.
 - 84 people have been hospitalized, and one death has been reported from California.
 - [Epidemiologic and laboratory evidence](#) indicates that raw turkey products from a variety of sources are contaminated with *Salmonella* Reading and are making people sick.
 - In interviews, ill people report eating different types and brands of turkey products purchased from many different locations. Three ill people lived in households where raw turkey pet food was fed to pets.
 - The outbreak strain has been identified in samples taken from raw turkey pet food, raw turkey products, and live turkeys.
 - On November 15, 2018, Jennie-O Turkey Store Sales in Barron, Wisconsin [recalled](#) approximately 91,388 pounds of raw ground turkey products.
 - On December 21, 2018, Jennie-O Turkey Store Sales, LLC, in Faribault, Minnesota [recalled](#) approximately 164,210 pounds of raw ground turkey products.

- A single, common supplier of raw turkey products or of live turkeys has not been identified that could account for the whole outbreak.
- The [Public Health Agency of Canada](#) has identified ill people infected with the same DNA fingerprint of *Salmonella* Reading bacteria in Canada.
- The outbreak strain of *Salmonella* Reading is present in live turkeys and in many types of raw turkey products, indicating it might be widespread in the turkey industry. CDC and USDA-FSIS have shared this information with representatives from the turkey industry and asked about steps that they may be taking to reduce *Salmonella* contamination.

Recall and Advice to Consumers and Retailers

Recall

On November 15, 2018, Jennie-O Turkey Store Sales, LLC, in Barron, Wisconsin [recalled](#) approximately 91,388 pounds of raw ground turkey products. The recalled ground turkey was sold in one-pound packages labeled with establishment number “P-190”. This is found inside the USDA mark of inspection.

On December 21, 2018, Jennie-O Turkey Store Sales, LLC, in Faribault, Minnesota [recalled](#) approximately 164,210 pounds of raw ground turkey products. The recalled ground turkey was sold in 1-pound, 2.5-pound and 3-pound packages labeled with establishment number “P-579”. This is found on the side of the product tray package.

A [full list of the recalled products](#) is available on the FSIS website. Do not eat, sell, or serve recalled Jennie-O brand ground turkey products. Do not eat, sell, or serve recalled Jennie-O brand ground turkey products.

Advice

Always handle raw turkey carefully and cook it thoroughly to prevent food poisoning. This outbreak is a reminder that raw turkey products can have germs that spread around food preparation areas and can make you sick.

With the exception of the [recalled](#) Jennie-O brand ground turkey products, CDC is not advising that consumers avoid eating properly cooked turkey products, or that retailers stop selling raw turkey products.

CDC advises consumers to follow these steps to help prevent *Salmonella* infection from raw turkey:

- **Wash your hands.** *Salmonella* infections can spread from one person to another. Wash hands before and after handling raw turkey products.
- **Cook raw turkey thoroughly to kill harmful germs.** Turkey breasts, whole turkeys, and ground poultry, including turkey burgers, casseroles, and sausage, should always be cooked to an internal temperature of 165°F to kill harmful germs. Leftovers should be reheated to 165°F. [Use a food thermometer to check, and place it in the thickest part of the food.](#)
- **Don't spread germs from raw turkey around food preparation areas.** [Washing raw poultry before cooking is not recommended.](#) Germs in raw poultry juices can spread to other areas and foods. Thoroughly wash hands, counters, cutting boards, and utensils with warm, soapy water after they touch raw turkey. Use a separate cutting board for raw turkey and other raw meats if possible.
- **CDC does not recommend feeding [raw diets to pets](#).** Germs like *Salmonella* in raw pet food can make your pets sick. Your family also can get sick by handling the raw food or by taking care of your pet.

CDC will update the advice to consumers and retailers if more information comes available, such as a supplier or type of raw turkey product linked to illness.

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 diarrhea 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.
- In rare cases, *Salmonella* infection can cause death unless the person is treated promptly with antibiotics.
- Children younger than 5 years of age, adults older than 65 years of age, and people with weakened immune systems are more likely to have severe illness.
- For more information, see the CDC [Salmonella](#) website.

Investigation Details

December 21, 2018

Since the last update on November 8, 2018, 52 ill people from 26 states and the District of Columbia have been added to this investigation.

As of December 18, 2018, 216 people infected with the outbreak strain of *Salmonella* Reading have been reported from 38 states and the District of Columbia. A list of the states and the number of cases in each can be found on the [Map of Reported Cases page](#).

Illnesses started on dates from [November 20, 2017, to December 6, 2018](#). Ill people range in age from less than 1 year to 99, with a median age of 40. Fifty-five percent of ill people are female. Of 175 people with information available, 84 (48%) have been hospitalized. One death has been reported from California.

[Whole genome sequencing analysis](#) (WGS) did not identify predicted antibiotic resistance in 132 [isolates](#) from 61 ill people and 71 food and animal samples. However, 80 isolates from ill people and 97 isolates from food, animal, and environmental samples contained genes for resistance or decreased susceptibility to all or some of the following antibiotics: ampicillin, streptomycin, sulfamethoxazole, tetracycline, kanamycin, gentamicin, nalidixic acid, ciprofloxacin, and fosfomycin. Testing of six outbreak isolates using standard [antibiotic susceptibility testing](#) by CDC's [National Antimicrobial Resistance Monitoring System \(NARMS\)](#) laboratory confirmed these results. Most of the infections in this outbreak are susceptible to the antibiotics that are commonly used for treatment, so this resistance likely will not affect the choice of antibiotic used to treat most people.

Investigation of the Outbreak

State and local health departments continue to interview ill people [about the foods they ate and other exposures](#) in the week before they became ill. Fifty-eight (54%) of the 108 ill people interviewed reported preparing or eating turkey products that were purchased raw, including ground turkey, turkey pieces, and whole turkey. Ill people reported buying many different brands of raw turkey products from multiple stores. Also, 3 of the 108 ill people interviewed became sick after pets in their home ate [raw ground turkey pet food](#). Four of the 108 ill people interviewed worked in a facility that raises or processes turkeys, or lived with someone who did.

Public health officials in Arizona and Michigan collected unopened Jennie-O brand ground turkey from the homes of two ill people. WGS showed that *Salmonella* bacteria isolated from the ill persons and from the ground turkey were closely related genetically. This result provides more evidence that people in this outbreak got sick from eating turkey.

On November 15, 2018, Jennie-O Turkey Store Sales, LLC, in Barron, Wisconsin [recalled](#) approximately 91,388 pounds of raw ground turkey products. On December 21, 2018, Jennie-O Turkey Store Sales, LLC, in Faribault, Minnesota [recalled](#) approximately 164,210 pounds of raw ground turkey products.

Ill people in this outbreak report buying many different brands of raw turkey products from multiple stores. Available data indicate that this strain of *Salmonella* Reading may be present in live turkeys and in raw turkey products. A single, common supplier of raw turkey products or of live turkeys has not been identified that could account for the whole outbreak.