

Salmonella Outbreaks Linked to Backyard Poultry



Investigation Notice

Posted November 18, 2021

This year's investigation of outbreaks linked to backyard poultry is over. However, any backyard poultry can carry *Salmonella* germs that can make you sick. Always take steps to stay healthy around your flock.

Fast Facts

- Illnesses: 1,135
- Hospitalizations: 273
- Deaths: 2
- [States](#): 48, the District of Columbia, and Puerto Rico
- Investigation status: Closed



Backyard Poultry and *Salmonella*

Backyard poultry, like chicken and ducks, can carry *Salmonella* germs even if they look healthy and clean. These germs can easily spread to anything in the areas where the poultry live and roam.

You can get sick from touching your backyard poultry or anything in their environment and then touching your mouth or food and swallowing *Salmonella* germs.

What Backyard Flock Owners Should Do

- **Wash your hands**
 - Always wash your hands with soap and water immediately after touching backyard poultry, their eggs, or anything in the area where they live and roam.
 - Use hand sanitizer if soap and water are not readily available. Consider having hand sanitizer at your coop.
- **Be safe around backyard flocks**
 - Don't kiss or snuggle backyard poultry, and don't eat or drink around them. This can spread *Salmonella* germs to your mouth and make you sick.
 - Keep your backyard flock and supplies you use to care for them (like feed containers and shoes you wear in the coop) outside of the house. You should also clean the supplies outside the house.
- **Supervise kids around flocks**
 - Always supervise children around backyard poultry and make sure they [wash their hands properly](#) afterward.
 - Don't let children younger than 5 years touch chicks, ducklings, or other backyard poultry. Young children are more likely to get sick from germs like *Salmonella*.
- **Handle eggs safely**
 - Collect eggs often. Eggs that sit in the nest can become dirty or break.
 - Throw away cracked eggs. Germs on the shell can more easily enter the egg through a cracked shell.
 - Rub off dirt on eggs with fine sandpaper, a brush, or a cloth. Don't wash them because colder water can pull germs into the egg.
 - Refrigerate eggs to keep them fresh and slow the growth of germs.
 - Cook eggs until both the yolk and white are firm, and cook egg dishes to an internal temperature of 160°F to kill all germs.
- **Call your healthcare provider right away if you have any of these severe symptoms:**
 - Diarrhea and a fever higher than 102°F
 - Diarrhea for more than 3 days that is not improving
 - Bloody diarrhea

- So much vomiting that you cannot keep liquids down
- Signs of dehydration, such as:
 - Not urinating (peeing) much
 - Dry mouth and throat
 - Feeling dizzy when standing up

What Stores Selling Poultry Should Do

- **Source poultry from hatcheries that take steps to reduce *Salmonella* contamination**
 - These hatcheries include those that have adopted the U.S. Department of Agriculture's (USDA's) [best management practices.pdf icon](#)[PDF – 25 pages]external icon to mitigate *Salmonella* contamination and those that voluntarily participate in the USDA's National Poultry Improvement Plan (USDA-NPIP) [U.S. Salmonella Monitored Program.pdf icon](#)[PDF – 17 pages]external icon.
- **Clean and sanitize poultry display areas between shipments of new poultry**
 - Be sure to remove debris first; then apply the disinfectant on the surface for the proper contact time recommended on the disinfectant label.
- **Help keep your customers healthy**
 - Provide handwashing stations or hand sanitizers next to poultry display areas and tell customers to wash hands right after leaving these areas.
 - Display poultry out of reach of customers, especially children, so they cannot easily touch the poultry.
 - Provide health information to owners and potential buyers of poultry before purchase. This [informational poster.pdf icon](#)[PDF – 1 page] describes ways to stay healthy with backyard flocks. Place it right beside flock display areas, and hand it out to customers.
- **Learn more about how to protect your customers and employees from *Salmonella* and other diseases shared between animals and humans**
 - Read the [2017 Compendium of Measures to Prevent Disease Associated with Animals in Public Settingsexternal icon](#).

What Poultry Hatcheries Should Do

- Use [best management practices pdf icon](#)[PDF – 25 pages]external icon to help prevent *Salmonella* in poultry.
- Participate in the voluntary USDA-NPIP [U.S. Salmonella Monitored Program pdf icon](#)[PDF – 17 pages]external icon and certify that your flocks are monitored for *Salmonella* germs.
- **Provide health information to owners and potential buyers of poultry before purchase.** This [informational poster pdf icon](#)[PDF – 1 page] describes ways to stay healthy with backyard flocks. This [graphicimage icon](#) can be printed as a sticker and placed on poultry shipping boxes.

Symptoms of *Salmonella*

- Most people infected with *Salmonella* experience diarrhea, fever, and stomach cramps.
 - Symptoms usually start 6 hours to 6 days after swallowing the bacteria.
 - Most people recover without treatment after 4 to 7 days.
- Some people—especially children younger than 5 years, adults 65 years and older, and people with weakened immune systems—may experience more severe illnesses that require medical treatment or hospitalization.
- For more information about *Salmonella*, see [the Salmonella Questions and Answers page](#).

Investigation Details

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CDC and public health officials in several states investigated multistate outbreaks of *Salmonella* infections with serotypes of Enteritidis, Hadar, Indiana, Infantis, Mbandaka, and Muenchen.

Epidemiologic and laboratory data showed that contact with backyard poultry made people sick.

Epidemiologic Data

A total of 1,135 people infected with one of the outbreak strains were reported from 48 states, the District of Columbia, and Puerto Rico (see [map](#)). The true number of sick people in these outbreaks was likely much higher than the number reported, and these outbreaks may not have been limited to the states with known illnesses. This is because many people recover without medical care and are not tested for *Salmonella*.

Illnesses started on dates ranging from December 15, 2020, to October 10, 2021 (see [timeline](#)). Age information was available for 1,132 people. Their ages ranged from less than 1 to 97 years, with a median age of 37 years. Many were young children: 268 (24%) were under 5 years and 140 (12%) were under 1 year. Of 1,107 people with sex information available, 646 (58%) were female. Of 829 people with information available, 273 (33%) were hospitalized. Two deaths were reported, one from Indiana and one from Virginia.

State and local public health officials interviewed people about the animals they came into contact with the week before they got sick. Of the 677 people interviewed, 449 (66%) reported contact with backyard poultry before getting sick.

Traceback Data

Of 293 people who reported contact with backyard poultry and provided more information, 212 (72%) reported that they bought backyard poultry this year. Purchase locations included feedstores, auctions, and directly from hatcheries. Traceback of these purchases did not identify a single, common source of backyard poultry. A total of 264 separate purchases from more than 150 purchase locations of 70 different companies were reported. At least 17 hatcheries supplied backyard poultry to these purchase locations.

Laboratory Data

Public health investigators used the [PulseNet](#) system to identify illnesses that were part of this outbreak. CDC PulseNet manages a national database of DNA fingerprints of bacteria that cause gastrointestinal illnesses. DNA fingerprinting is performed on bacteria using a method called [whole genome sequencing \(WGS\)](#). WGS showed that bacteria from sick people's samples were closely related genetically. This means that people in these outbreaks likely got sick from the same type of animal.

Public health officials from several states found two of the outbreak strains (Hadar and Enteritidis) from sick people's backyard poultry and the backyard poultry environment.

- On April 15, public health officials in Ohio found the outbreak strain of *Salmonella* Hadar from a sick person's ducklings.
- On May 7, local public health officials in California found the outbreak strain of *Salmonella* Hadar from a sick person's duck environment (the ground, duck poop, and duck's sleeping area).
- On June 1, public health officials in Arizona found the outbreak strain of *Salmonella* Hadar from a sick person's chickens and the chicken environment (chickens' roost and water source).
- On June 15, public health officials in Maryland found the outbreak strain of *Salmonella* Enteritidis from a sick person's chickens.

WGS was also used to identify any predicted antibiotic resistance for bacteria from 1,101 sick people's samples, 4 animal samples, and 7 environmental samples. Of the 1,112 samples, 394 (35%) were predicted to be resistant to one or more of the following antibiotics: amoxicillin-clavulanic acid (0.5%), ampicillin (0.9%), chloramphenicol (0.3%), cefoxitin (0.5%), ceftriaxone (0.5%), ciprofloxacin (0.1%), gentamicin (1.8%), kanamycin (0.4%), streptomycin (33.8%), sulfamethoxazole (2.2%), tetracycline (32.6%), and trimethoprim-sulfamethoxazole (0.2%). Testing of 11 sick people's samples using standard [antibiotic susceptibility testing](#) methods by CDC's [National Antimicrobial Resistance Monitoring System \(NARMS\)](#) confirmed these results (streptomycin and kanamycin were not tested by this method).

Most people with *Salmonella* illness recover without antibiotics. However, if antibiotics were needed, some illnesses in these outbreaks may have been

difficult to treat with some commonly recommended antibiotics and may have required a different antibiotic choice.

Public Health Action

CDC always advises everyone to take steps to [stay healthy around backyard poultry](#). CDC routinely [works with hatcheries and stores that sell poultry](#) to educate new poultry owners and control the spread of *Salmonella* at hatcheries.