

epiTRENDS

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Salmonellosis Outbreaks

Salmonellosis is often associated with poultry, dairy products, and eggs. Washington State has had cases in a recent multistate outbreak of salmonellosis from one such source as well as cases in two another outbreaks due to less common exposures.

Backyard Poultry

Backyard poultry, such as chickens, ducks, geese, turkeys, and other domesticated birds, can be a source of exposure to pathogens, including *Salmonella*. Multiple salmonellosis outbreaks associated with backyard poultry contact have occurred in the United States, with cases usually starting to increase in the spring when people buy new baby poultry. In 2022 there were 1,230 reported illnesses in the United States due to backyard poultry including two deaths, affecting all states but Hawaii, as well as District of Columbia and Puerto Rico. The youngest case was under a year of age.

Chicks or ducks from a hatchery may be carrying *Salmonella* or they may acquire it during feeding, transport, or retail display. Backyard poultry may have *Salmonella* bacteria on their bodies, even when they appear healthy and clean. The bacteria also get on cages and other equipment or items in the area where poultry live. Once hands are contaminated a person may expose themselves, or they can spread the bacteria to other surfaces or even to other person. This is why appropriate handwashing is essential following contact with backyard poultry or their living environment.

Measures to prevent transmission from poultry occur at several levels, from the hatchery to the flock owner. Flock owners should take measures such as practicing good hygiene, supervising children around poultry, and keeping poultry and any equipment used around poultry outside of the home. Keep poultry of any age outside the home, and clean birds' supplies, such as water or



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To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email civil.rights@doh.wa.gov

How to Prepare for a Healthy Family and Flock

Your new chicks, ducklings, and other birds can carry germs like *Salmonella* or bird flu that may make them – and you – sick. Follow these tips to keep your family and your birds safe.

Wash your hands after touching or caring for birds.
You can get sick if you touch your birds, or bird supplies, and then touch your face, mouth, or eyes.

- Wash hands with soap and water for 20 seconds after touching or caring for your birds.
- Always wash your hands with soap and water after touching or caring for your birds.
- Avoid contact with birds you are touching and caring for.

Wash chicks and ducklings that were in the perfect box for you. Avoid touching chicks from a hatchery that for several weeks. Children under the age of five should not touch or hold birds because of flu.

Keep your birds outside.
Although it may be tempting, do not bring new birds inside your home. The best way to keep your germs outside is to keep them outside.

- Keep a separate set of shoes and other supplies you use when caring for birds outside your home.
- Clean your birds' supplies, such as water or food containers, outside.

Don't let your birds have contact with wild birds.
Wild birds often have wild flu, salmonella, and other germs. In backyard poultry, don't let your birds have contact with wild birds or wild animals. This includes having a close view of the area where they live and roost.

Don't touch sick or dead birds.
If you have a sick or dead bird, wear gloves and an N95 mask when you touch it. Report sick or dead birds to your veterinarian and the Washington State Department of Agriculture at 1-800-406-3036.

Department of Health | Department of Agriculture | Department of Social & Health Services | Department of Labor & Industries | Department of Natural Resources | Department of Public Safety | Department of Transportation | Department of Veterans Affairs | Department of Workforce Development

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food containers, outside. Children under 5 years old should not touch backyard poultry or anything in the area where poultry live or roam. Stores selling poultry should source poultry from hatcheries using USDA best management practices, keep poultry out of reach of customers (particularly children), sanitize display areas between poultry shipments, provide prevention information to consumers, and follow best practices to mitigate *Salmonella* contamination and spread in their facility.

Raw Cookie Dough

An unusual source of exposure for salmonellosis is commercial raw cookie dough. Washington was the first state to detect recent cases of *Salmonella* Enteritidis associated with two flavors of commercial take-and-bake raw cookie dough. A total of 18 cases mainly in western six states occurred over a two and a half month period. Investigation is continuing with a goal of identifying the potentially contaminated components of the product, which included package instructions that it was not intended to be eaten raw.

Washington also had cases in a multistate salmonellosis outbreak associated with a national brand of flour widely available to consumers. Cases occurred over a five month period. All but one of the 13 affected states had single cases while the remaining state had two cases. There were cases across the continental United States. The product tested positive for *Salmonella* Infantis and a voluntary recall was issued.

While eggs are often the first consideration for salmonellosis connected to baked goods, previous national foodborne outbreaks implicated cake mix or raw flour as the source. Infections have been due to *Salmonella* and to Shiga toxin-producing *E. coli* (STEC) strains. Of recent outbreaks associated with flour or baking mixes, Washington had cases in all but the 2019 outbreak:

Year	Organism	Product	Cases
2023	<i>Salmonella</i>	Flour	14 cases in 13 states
2021	<i>E. coli</i> O121	Cake mix	16 cases in 12 states
2019	<i>E. coli</i> O26	Flour	21 cases in 9 states
2016	<i>E. coli</i> O121 or O26	Flour, baking mixes	63 cases in 24 states

In all the outbreaks listed above, a small number of cases was reported for products that had wide national distribution. Such products are typically prepared and distributed in large quantities, and the occurrence of cases in multiple states suggests that the contamination was not highly limited. The actual number of people affected is therefore likely to be much higher than the number of cases reported.

The low moisture content and dry conditions should act against bacterial growth in products such as bagged flour, but contamination could occur at any point from the farm to the store. Wildlife including rodents, birds, and deer can carry *Salmonella* or STEC. If these animals enter grain fields, preharvest contamination could occur. Similarly, contamination could happen during harvest, transportation, storage, or milling if birds or rodents managed to enter a facility where grain or flour was held or processed. Cattle and sheep can also carry these agents, with potential contamination if manure was carried by wind or water into a field.

Currently dry flour is not considered a ready-to-eat product. It is recommended that consumers not eat raw flour-containing dough, whether or not it contains egg; this includes raw batter or dough made from packaged baking mixes. Cake mixes should not be added to beverages, ice cream, or other food that will not be cooked. Ready-to-eat products that contain raw dough or batter, such as commercial cookie dough ice cream or edible brownie batter, use treated flour and pasteurized eggs to avoid contamination and are safe to eat as a raw product. Also note that modeling clay made for children should not include raw flour because children are at particular risk for complications from salmonellosis or other infections associated with raw flour.

While the risk of contamination with pathogens such as *Salmonella* is low for any specific batch of dough or flour, the resulting infections can be severe. Everybody should take precautions but being careful it especially important for young children, the elderly, and anybody with a medical condition that could make them vulnerable for severe disease.

Resources

National salmonellosis outbreaks: <https://www.cdc.gov/salmonella/outbreaks.html>

Backyard poultry resources: <https://www.cdc.gov/salmonella/backyardpoultry-06-22/index.html>

Raw cookie dough salmonellosis outbreak 2023:

<https://www.cdc.gov/salmonella/enteritidis-05-23/index.html>

Flour salmonellosis outbreak 2023:

<https://www.cdc.gov/salmonella/infantis-03-23/index.html>

Flour STEC outbreaks:

<https://www.cdc.gov/ecoli/2019/flour-05-19/index.html>

<https://www.cdc.gov/ecoli/2016/o121-06-16/index.html>

CDC Say no to raw dough: <https://www.cdc.gov/foodsafety/communication/no-raw-dough.html>



Eating uncooked flour or raw eggs can make you sick. Say no to raw dough!

www.cdc.gov