

Salmonella Outbreak Linked to Flour



Investigation Notice

Posted March 30, 2023

Investigators are working to identify a specific brand of flour linked to this outbreak. However, any raw (unbaked) flour can have germs, like *Salmonella*. Do not eat or play with uncooked flour, dough, or batter.

Fast Facts

- Illnesses: 12
- Hospitalizations: 3
- Deaths: 0
- [States](#): 11
- Recall: No
- Investigation status: Active

Salmonella in Raw Flour

Flour doesn't look like a raw food, but most flour is raw. This means that it hasn't been treated to kill germs that cause food poisoning. Any raw (unbaked) flour used to make dough or batter can be contaminated with germs like *Salmonella*, but *Salmonella* germs are killed when flour is cooked or baked. You can get sick after eating or tasting raw dough or batter. Children can get sick from handling or eating raw dough used for crafts or play clay.

Source of the Outbreak

Most people reported eating raw dough or batter made with flour before they got sick. Flour was the only common ingredient in the raw dough or batter people reported eating. Investigators are working to identify a specific brand of flour linked to illnesses.

What You Should Do

- **Do not eat raw dough or batter – even a small amount can make you or your child sick**
 - Bake or cook food made with raw flour, like cookie dough or cake batter, before eating it.

- Follow the recipe or package instructions for cooking or baking. Use the temperature and cooking time given in the recipe or instructions.
- Buy [heat-treated flour](#) to use in recipes for homemade playdough.
- **Clean**
 - Wash any bowls, utensils, and surfaces that touched raw flour with warm water and soap.
 - Wash your hands with warm water and soap before and after using raw flour.
- **Separate**
 - Keep raw flour, dough, and batter separate from foods that won't be cooked.
- **Call a healthcare provider** right away if you or your child have:
 - 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 peeing much
 - Dry mouth and throat
 - Feeling dizzy when standing up

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.

Investigation Details

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CDC, public health and regulatory officials in several states, and the U.S. Food and Drug Administration (FDA) are collecting [different types of data](#) to identify the food source of a multistate outbreak of *Salmonella* Infantis infections.

Epidemiologic data show that flour contaminated with *Salmonella* is making people sick. Investigators are working to identify specific brands of flour that may be linked to these illnesses.

Epidemiologic Data

As of March 30, 2023, 12 people infected with the outbreak strain of *Salmonella* have been reported from 11 states. Illnesses started on dates ranging from December 6, 2022, to February 13, 2023.

Public health officials collect many different types of information from sick people, including their age, race, ethnicity, other demographics, and the foods they ate in the week before they got sick. This information provides clues to help investigators identify the source of the outbreak.

Sick people range in age from 12 to 81 years, with a median age of 64, and 92% are female. Of 10 people with race or ethnicity information available, 8 are White, 2 are Asian, and no one reported Hispanic ethnicity. Of 12 people with information available, 3 have been hospitalized. No deaths have been reported.

The true number of sick people in this outbreak is likely much higher than the number reported, and the outbreak may not be limited to the states with known illnesses. This is because many people recover without medical care and are not tested for *Salmonella*. In addition, recent illnesses may not yet be reported as it usually takes [3 to 4 weeks](#) to determine if a sick person is part of an outbreak.

State and local public health officials are interviewing people about the foods they ate in the week before they got sick. Of the 7 people interviewed, 6 (86%) reported eating raw dough or batter. Flour was the only common

ingredient in the raw dough or batter people reported eating. Investigators are working to identify a specific brand of raw flour that is linked to illnesses.

Laboratory Data

Public health investigators are using the [PulseNet](#) system to identify illnesses that may be part of this outbreak. CDC PulseNet manages a national database of DNA fingerprints of bacteria that cause foodborne illnesses. DNA fingerprinting is performed on bacteria using a method called [whole genome sequencing \(WGS\)](#).

WGS showed that bacteria from sick people's samples are closely related genetically. This suggests that people in this outbreak may have gotten sick from eating the same food.

[WGS analysis](#) of bacteria from 12 people's samples did not predict resistance to any antibiotics. Standard [antibiotic susceptibility testing](#) by CDC's [National Antimicrobial Resistance Monitoring System \(NARMS\)](#) laboratory is currently underway.

Public Health Actions

Investigators are working to identify specific brands of flour that are linked to illness. In the meantime, CDC always advises you not to eat raw cookie dough or cake batter.