

Outbreak of *Salmonella* Stanley Infections Linked to Wood Ear Mushrooms

Final Update

Updated November 4, 2020 at 3:00 PM ET

This outbreak appears to be over. People could get sick if restaurants that are unaware of the recall continue to serve recalled wood ear mushrooms because of their long shelf life. Check the U.S. Food and Drug Administration (FDA) website for the list of recalled products.

CDC, public health and regulatory officials in several states, and the FDA investigated a multistate outbreak of *Salmonella* Stanley infections linked to wood ear mushrooms (also commonly known as kikurage or dried fungus).

Advice to Restaurants and Consumers

At A Glance

- [Reported Cases](#): 55
- [States](#): 12
- Hospitalizations: 6
- Deaths: 0
- Recall: Yes



- **This outbreak appears to be over. Dried wood ear mushrooms have a long shelf life. Restaurants should check their inventory for recalled dried wood ear mushrooms distributed from Wismettac Asian Foods, Inc.**
 - These mushrooms were sold only to restaurants and not directly to consumers.
 - Restaurant employees should check for recalled dried mushrooms and not serve or sell them. If you can't tell where your dried mushrooms are from, throw them away.
 - Wood ear mushrooms are also commonly referred to as kikurage, dried black fungus, dried fungus, or mu'er/mu er/mu-err.

- In general, dried mushrooms should always be rehydrated using boiling water to kill any pathogens. This advice does not apply to recalled mushrooms, which should be thrown away.
- [Clean and sanitize](#) all surfaces that recalled mushrooms may have come in contact with, including cutting boards, countertops, utensils, and storage bins

Symptoms of *Salmonella* Infection

- Most people infected with *Salmonella* develop diarrhea, fever, and stomach cramps 6 hours to 6 days 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.

Final Outbreak Information

As of November 4, 2020, this outbreak appears to be over.

- A total of 55 people infected with the outbreak strain of *Salmonella* Stanley were reported from 12 states.
 - 6 hospitalizations were reported. No deaths were reported.
- [Epidemiologic, laboratory, and traceback](#) information showed that wood ear mushrooms distributed by Wismettac Asian Foods, Inc., were the likely source of this outbreak.
- On September 23, 2020, Wismettac Asian Foods recalled dried fungus due to possible *Salmonella* contamination.

Investigation Details

November 4, 2020

CDC, public health and regulatory officials in several states, and FDA investigated a multistate outbreak of *Salmonella* Stanley infections.

Public health investigators used the [PulseNet](#) system to identify illnesses that were 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 likely to share a common source of infection.

A total of 55 people infected with the outbreak strain of *Salmonella* Stanley were reported from 12 states.

Illnesses started on dates ranging from [January 21, 2020, to September 19, 2020](#). Ill people ranged in age from 2 to 74 years, with a median age of 28. Fifty-seven percent of ill people were female. Of 48 ill people with information available, 6 hospitalizations were reported. No deaths were reported.

Whole genome sequencing analysis of 35 bacterial isolates from ill people did not predict any antibiotic resistance. Standard [antibiotic susceptibility testing](#) by CDC's [National Antimicrobial Resistance Monitoring System \(NARMS\)](#) laboratory is underway.

Investigation of the Outbreak

[Epidemiologic, laboratory, and traceback information](#) showed that wood ear mushrooms distributed by Wismettac Asian Foods, Inc., were the likely source of this outbreak.

In interviews, ill people answered [questions about the foods they ate and other exposures](#) in the week before they became ill. Of 23 people with information, 22 (96%) reported eating ramen at a restaurant in the week before their illness started. Several people reported eating at the same ramen restaurants, showing they may have been part of illness clusters.

A foodborne illness cluster is defined as two or more people who do not live in the same household who report eating at the same restaurant location, attending a common event, or shopping at the same location of a grocery store in the week before becoming ill. Investigating illness clusters can provide critical clues about the source of an outbreak. If several unrelated ill people ate or shopped at the same location of a restaurant or store within several days of each other, it suggests that the contaminated food item was served or sold there.

Five illness clusters were identified at restaurants serving ramen in three states. Ten (91%) of the 11 ill people linked to restaurant clusters reported eating wood ear mushrooms or ramen containing wood ear mushrooms in the week before their illness started.

FDA and states conducted a traceback investigation from four of the restaurants with illness clusters to identify the source of the wood ear mushrooms eaten by ill

people. Traceback determined that Wismettac Asian Foods, Inc., supplied wood ear mushrooms (dried fungus) to these restaurants.

On September 23, 2020, Wismettac Asian Foods recalled dried fungus due to possible *Salmonella* contamination. On October 1, 2020, the California Department of Public Health identified the outbreak strain of *Salmonella* Stanley in recalled dried fungus samples.

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