Salmonella Outbreak Linked to Onions

Food Safety Alert

Posted November 16, 2021

Fast Facts

- Illnesses: 892 (84 new)
- Hospitalizations: 183 (26 new)
- Deaths: 0
- States: 38 and Puerto Rico (1 new)
- Recall: Yes
- Investigation status: Active

Recalled Food

Multiple companies have recalled onions. All recalled onions were supplied by ProSource Produce LLC and Keeler Family Farms and imported from the State of Chihuahua, Mexico, between July 1, 2021, and August 31, 2021.

FDA's website has a table with information about each company's recall.

What Businesses Should Do

Do not sell or serve recalled onions.

- Check storage coolers for these onions. If you can't tell where onions are from, throw them away.
- Wash and sanitize any surfaces that may have come in contact with these onions.

What You Should Do

Do not buy or eat any recalled onions.

- If you can't tell where the onions are from, don't buy or eat them.

Throw away any recalled onions.

- Check to see if you have any recalled onions. If you have any recalled onions or if you can't tell where your onions are from, don't eat them. Throw them away.
- Wash surfaces and containers these onions may have touched using hot soapy water or a dishwasher.

Call your healthcare provider right away if you have any of these severe *Salmonella* 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 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, FDA, and public health and regulatory officials in several states are collecting different types of data to investigate a multistate outbreak of *Salmonella* Oranienburg infections linked to onions.

Epidemiologic and traceback data show that this outbreak of *Salmonella* Oranienburg infections is linked to onions.

Epidemiologic Data

Since the last update on October 29, 2021, 84 more sick people were added to this outbreak. As of November 12, 2021, 892 people infected with the outbreak strain of *Salmonella* Oranienburg have been reported from 38

states and Puerto Rico. Illnesses started on dates ranging from May 31, 2021, to October 25, 2021.

Sick people range in age from less than 1 year to 101 years, with a median age of 37, and 58% are female. Of 571 people with information available, 183 (32%) have been hospitalized.

The true number of sick people in an 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.

Laboratory Data

Whole genome sequencing of bacteria from 788 people's samples did not predict any antibiotic resistance. Five people's samples were predicted to be resistant to one or more of the following antibiotics: amoxicillin-clavulanic acid, ampicillin, cefoxitin, and ceftriaxone, gentamicin, streptomycin, sulfamethoxazole, and tetracycline. Standard antibiotic susceptibility testing of three people's samples by CDC's National Antimicrobial Resistance Monitoring System (NARMS) laboratory also found no resistance. Most people with *Salmonella* illness recover without antibiotics. However, if antibiotics are needed, this resistance is unlikely to affect the choice of antibiotic used to treat most people because it is rare.

Previous Updates

October 29, 2021

CDC, FDA, and public health and regulatory officials in several states are collecting different types of data to investigate a multistate outbreak of *Salmonella* Oranienburg infections linked to onions.

Epidemiologic and traceback data show that this outbreak of *Salmonella* Oranienburg infections is linked to onions.

Epidemiologic Data

Since the last update on October 18, 2021, 156 more sick people were added to this outbreak. As of October 28, 2021, 808 people infected with the outbreak strain of *Salmonella* Oranienburg have been reported from 37 states and Puerto Rico. Illnesses started on dates ranging from May 31, 2021, to October 13, 2021.

Sick people range in age from less than 1 year to 101 years, with a median age of 37, and 57% are female. Of 505 people with information available, 157 (31%) have been hospitalized.

The true number of sick people in an 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.

Laboratory Data

Whole genome sequencing of bacteria from 709 people's samples did not predict any antibiotic resistance. Five people's samples were predicted to be resistant to one or more of the following antibiotics: amoxicillin-clavulanic acid, ampicillin, cefoxitin, and ceftriaxone, gentamicin, streptomycin, sulfamethoxazole, and tetracycline. Standard antibiotic susceptibility testing of three people's samples by CDC's National Antimicrobial Resistance Monitoring System (NARMS) laboratory also found no resistance. Most people with *Salmonella* illness recover without antibiotics. However, if antibiotics are needed, this resistance is unlikely to affect the choice of antibiotic used to treat most people because it is rare.

October 22, 2021

CDC, FDA, and public health and regulatory officials in several states are collecting different types of data to investigate a multistate outbreak of *Salmonella* Oranienburg infections linked to onions.

Epidemiologic and traceback data show that illnesses in this outbreak are linked to whole red, white, and yellow onions distributed by ProSource Produce LLC and Keeler Family Farms that were imported from the State of Chihuahua, Mexico. Investigators are working to determine if other onions or suppliers are linked to this outbreak.

Traceback Data

FDA's traceback investigation identified Keeler Family Farms as an additional common onion supplier for many of the restaurants where sick people ate.

Public Health Actions

CDC and FDA recommend that you not eat, sell, or serve fresh whole red, white, or yellow onions distributed by ProSource Produce LLC or Keeler Family Farms that were imported from the State of Chihuahua, Mexico.

October 21, 2021

CDC, FDA, and public health and regulatory officials in several states are collecting different types of data to investigate a multistate outbreak of *Salmonella* Oranienburg infections linked to onions.

Epidemiologic and traceback data show that illnesses in this outbreak are linked to whole red, white, and yellow onions distributed by ProSource Produce LLC and Keeler Family Farms that were imported from the State of Chihuahua, Mexico. Investigators are working to determine if other onions or suppliers are linked to this outbreak.

Traceback Data

FDA's traceback investigation identified Keeler Family Farms as an additional common onion supplier for many of the restaurants where sick people ate.

Public Health Actions

CDC and FDA recommend that you not eat, sell, or serve fresh whole red, white, or yellow onions distributed by ProSource Produce LLC or Keeler Family Farms that were imported from the State of Chihuahua, Mexico.

October 20, 2021

CDC, FDA, and public health and regulatory officials in several states are collecting different types of data to investigate a multistate outbreak of *Salmonella* Oranienburg infections linked to onions.

Epidemiologic and traceback data show that illnesses in this outbreak are linked to whole red, white, and yellow onions distributed by ProSource Inc. that were imported from Chihuahua, Mexico. Investigators are working to determine if other onions or suppliers are linked to this outbreak.

Epidemiologic Data

As of October 18, 2021, 652 people infected with the outbreak strain of *Salmonella* Oranienburg have been reported from 37 states. Illnesses started on dates ranging from May 31, 2021, to September 30, 2021.

Sick people range in age from less than 1 year to 97 years, with a median age of 37, and 57% are female. Of 417 people with information available, 129 (31%) have been hospitalized. No deaths have been reported.

The true number of sick people in an 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.

In interviews, ill people answered questions about the foods they ate and other exposures in the week before they became ill. Of 193 people with information, 145 (75%) reported eating or maybe eating raw onions or dishes likely containing raw onion before they became sick. Several ill people reported eating at the same restaurants, indicating they may be part of illness clusters. These clusters can provide clues about what food item may be making people sick. 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. States identified 20 illness clusters at restaurants where onions were served. Information from these clusters shows that many ill people ate raw onions.

Laboratory and Traceback Data

FDA conducted a traceback investigation and identified ProSource Inc. as a common supplier of imported onions to many of the restaurants where sick people ate. One of these clusters occurred in a restaurant where investigators identified the outbreak strain of *Salmonella* Oranienburg in a condiment container with leftover lime and cilantro. The sick person reported that the condiment cup had also contained onions, although none were left when the condiment was tested. FDA is working to determine if other suppliers of onions may be linked to this outbreak or if there is a common supplier of onions in Chihuahua, Mexico.

Whole genome sequencing of bacteria in samples from 609 people did not predict any antibiotic resistance. Samples from three people were predicted to be resistant to one or more of the following antibiotics: amoxicillin-clavulanic acid, ampicillin, cefoxitin, and ceftriaxone, gentamicin, streptomycin, sulfamethoxazole, and tetracycline. Standard antibiotic susceptibility testing by CDC's National Antimicrobial Resistance Monitoring System (NARMS) laboratory is currently underway. Most people with *Salmonella* illness recover without antibiotics. However, if antibiotics are needed, this resistance is unlikely to affect the choice of antibiotic used to treat most people because it is rare.

Public Health Actions

CDC and FDA recommend that you not eat, sell, or serve fresh whole red, white, or yellow onions distributed by ProSource Inc. that were imported from Chihuahua, Mexico.

October 14, 2021

CDC and public health and regulatory officials in several states are collecting different types of data to investigate a multistate outbreak of *Salmonella* Oranienburg infections. The investigation has not yet identified a food linked to illness.

Epidemiologic Data

As of October 14, 2021, 592 people infected with the outbreak strain of *Salmonella* Oranienburg have been reported from 36 states. Illnesses started on dates ranging from May 31, 2021, to September 29, 2021.

Sick people range in age from less than 1 year to 97 years, with a median age of 36, and 57% are female. Of 363 people with information available, 116 (32%) have been hospitalized and no deaths have been reported.

The true number of sick people in an 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 continue to interview people about the foods they ate in the week before they got sick. CDC is analyzing the data and has not identified a specific food item as a potential source of this outbreak.

Laboratory Data

Whole genome sequencing of bacteria from 556 people's samples did not predict any antibiotic resistance. Three people's samples were predicted to be resistant to one or more of the following antibiotics: amoxicillin-clavulanic acid, ampicillin, cefoxitin, and ceftriaxone, gentamicin, streptomycin, sulfamethoxazole, and tetracycline. Standard antibiotic susceptibility testing by CDC's National Antimicrobial Resistance Monitoring System (NARMS) laboratory is currently underway. Most people with *Salmonella* illness recover without antibiotics. However, if antibiotics are needed, this resistance is unlikely to affect the choice of antibiotic used to treat most people because it is rare.

September 30, 2021

CDC and public health and regulatory officials in several states are collecting different types of data to investigate a multistate outbreak of *Salmonella*

Oranienburg infections. The investigation has not yet identified a food linked to illness.

Since the last update on September 23, 2021, 140 more people were added to this outbreak. As of September 29, 2021, 419 people infected with the outbreak strain of *Salmonella* Oranienburg have been reported from 35 states. Illnesses started on dates ranging from June 19, 2021, to September 14, 202.

Sick people range in age from less than 1 year to 91 years, with a median age of 37, and 56% are female. Of 214 people with information available, 66 (31%) have been hospitalized and no deaths have been reported.

The true number of sick people in an 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.

Laboratory Data

Whole genome sequencing of bacteria from 1 food sample and 289 people's samples did not predict any antibiotic resistance. One person's sample was predicted to be resistant to amoxicillin-clavulanic acid, ampicillin, cefoxitin, and ceftriaxone, and one person's sample was predicted to be resistant to gentamicin, streptomycin, and sulfamethoxazole. Standard antibiotic susceptibility testing by CDC's National Antimicrobial Resistance Monitoring System (NARMS) laboratory is currently underway. Most people with *Salmonella* illness recover without antibiotics. However, if antibiotics are needed, this resistance is unlikely to affect the choice of antibiotic used to treat most people because it is rare.

September 24, 2021

CDC and public health and regulatory officials in several states are collecting different types of data to investigate a multistate outbreak of *Salmonella*

Oranienburg infections. The investigation has not yet identified a food linked to illness.

Laboratory Data

State and local officials have collected food items from some of the restaurants where sick people ate. The outbreak strain of *Salmonella* Oranienburg was found in a sample taken from a takeout condiment cup containing cilantro and lime. The sick person reported that the condiment container also contained onions, but none were left in the cup when it was tested.

Because multiple food items were present in the container and in the sample that was tested, it is not possible to know which food item was contaminated. We are using this information in conjunction with other available information to help narrow the list of possible foods linked to illness.

September 23, 2021

CDC and public health and regulatory officials in several states are collecting different types of data to investigate a multistate outbreak of *Salmonella* Oranienburg infections. The investigation has not yet identified a food linked to illness.

Epidemiologic Data

On September 2, 2021, CDC identified an outbreak of 20 *Salmonella* Oranienburg infections. Since then, the outbreak has grown rapidly.

As of September 21, 2021, 279 people infected with the outbreak strain of *Salmonella* Oranienburg have been reported from 29 states. Illnesses started on dates ranging from August 3, 2021 to September 13, 2021.

Sick people range in age from less than 1 year to 89 years, with a median age of 35, and 59% are female. Of 86 people with information available, 26 have been hospitalized and no deaths have been reported.

The true number of sick people in an 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. CDC is analyzing the data and has not identified a specific food item as a potential source of this outbreak. Several groups of people ("subclusters") at restaurants in multiple states have been identified. These subclusters are groups of people who do not know one another who ate at the same restaurant and got sick. Investigating these subclusters can sometimes help identify a food item eaten by all of the sick people that could be the source of the outbreak.

September 17, 2021

CDC, public health and regulatory officials in several states are collecting different types of data to investigate a multistate outbreak of *Salmonella* Oranienburg infections. The investigation has not yet identified a food linked to illness.

Epidemiologic Data

On September 2, 2021, CDC identified an outbreak of 20 *Salmonella* Oranienburg infections. Since then, the outbreak has grown rapidly.

As of September 15, 2021, 127 people infected with the outbreak strain of Salmonella Oranienburg have been reported from 25 states. Illnesses started on dates ranging from August 3, 2021 to September 1, 202.

Sick people range in age from less than 1 year to 82 years, with a median age of 33, and 59% are female. Of 49 people with information available, 18 have been hospitalized and no deaths have been reported.

The true number of sick people in an 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. CDC is analyzing the data and has not identified a specific food item as a potential source of this outbreak. Several groups of people ("subclusters") at restaurants in multiple states have been identified. These subclusters are groups of people who do not know one another who ate at the same restaurant and got sick. Investigating these subclusters can sometimes help identify a food item eaten by all of the sick people that could be the source of the outbreak.

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 means that people in this outbreak likely got sick from the same food.

WGS analysis of bacteria from 98 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.

Traceback Data

FDA is analyzing records collected from restaurant locations where sick people ate. This analysis can help identify a common source, like a distributor or supplier, or a potential point of contamination for the outbreak.