

Outbreak of *E. coli* Infections Linked to Clover Sprouts

Final Update



Food Safety Alert

Posted on April 22, 2020 at 3:00 PM ET

This outbreak appears to be over. However, raw and lightly cooked sprouts are a known source of foodborne illness. CDC recommends that consumers, restaurants, and other retailers always follow food safety practices to avoid illness from eating sprouts.

CDC, public health and regulatory officials in several states, and the U.S. Food and Drug Administration (FDA) investigated a multistate outbreak of *E. coli* O103 infections linked to clover sprouts.

Advice to Consumers, Retailers, and Restaurants

At A Glance

- [Reported Cases](#): 51
- [States](#): 10
- Hospitalizations: 3
- Deaths: 0
- Recall: Yes

Advice to Consumers

Reduce your risk of getting sick from raw or lightly cooked sprouts.

- Children, older adults, pregnant women, and people with weakened immune systems should avoid eating raw sprouts of any kind (including alfalfa, clover, radish, and mung bean sprouts).
- Cook sprouts thoroughly to reduce the risk of illness. Cooking sprouts thoroughly kills the harmful bacteria.

- Ask that raw sprouts not be added to your food. If you buy a sandwich or salad at a restaurant or deli, check to make sure that raw sprouts have not been added.

Advice to Restaurants and Retailers

- Raw and lightly cooked sprouts are a known source of [foodborne illness](#). Always follow [food safety practices](#) to avoid illness from eating sprouts.
 - Cook sprouts thoroughly to reduce the risk of illness. Thoroughly cooking sprouts kills the harmful bacteria.
- CDC recommends that retailers always purchase sprouts from sprouters that follow the FDA Sprouts Guidance. Final Outbreak Information
- As of April 22, 2020, this outbreak appears to be over.
- 51 people infected with the outbreak strain of *E. coli* O103 were reported from 10 states.
 - 3 people were hospitalized. No deaths were reported.
- [Epidemiologic, traceback, and laboratory evidence](#) indicated that clover sprouts were the source of this outbreak.
 - On March 16, 2020, Chicago Indoor Garden recalled all products containing red clover sprouts. More information about this recall is available on the FDA website.
 - Jimmy John's LLC reported that all of its restaurants stopped serving clover sprouts on February 24, 2020.

Symptoms of *E. coli* Infection

- People usually get sick from Shiga toxin-producing *E. coli* (STEC) 1 to 10 days (average of 3 to 4 days) after swallowing the germ.
- Symptoms vary, but often include severe stomach cramps, diarrhea (often bloody), and vomiting. Some people may have a fever, which usually is not very high (less than 101°F/38.5°C).
- Some people with a STEC infection may get a type of kidney failure called hemolytic uremic syndrome (HUS).
- Antibiotics are not recommended for patients with suspected *E. coli* infections until diagnostic testing can be performed and *E. coli* infection is ruled out.

Some studies have shown that administering antibiotics to patients with *E. coli* infections might increase their risk of developing HUS, and a benefit of treatment has not been clearly demonstrated.

Investigation Details

April 22, 2020

CDC, public health and regulatory officials in several states, and the U.S. Food and Drug Administration (FDA) investigated a multistate outbreak of *E. coli* O103 infections linked to clover sprouts.

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 *E. coli* 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 51 people infected with the outbreak strain of *E. coli* O103 were reported from 10 states. A list of the states and the number of cases in each can be found on the [Map of Reported Cases](#).

Illnesses started on dates ranging from [January 6, 2020, to March 15, 2020](#). Ill people ranged in age from 1 to 79 years, with a median age of 29 years. Fifty-five percent of ill people were female. Of 41 ill people with information available, 3 were hospitalized and no deaths were reported.

[WGS analysis](#) of isolates from 39 ill people was performed; the isolate from 1 ill person predicted [antibiotic resistance](#) to streptomycin, sulfisoxazole, tetracycline, and trimethoprim-sulfamethoxazole, and 38 isolates from ill people did not show evidence of antibiotic resistance. Standard [antibiotic susceptibility testing](#) by CDC's [National Antimicrobial Resistance Monitoring System \(NARMS\)](#) laboratory

is currently underway. These findings do not affect treatment guidance since antibiotics are not recommended for patients with STEC O103 infections.

Investigation of the Outbreak

[Epidemiologic, traceback, and laboratory evidence](#) indicated that clover sprouts were the source of this outbreak.

In interviews, ill people answered [questions about the foods they ate and other exposures](#) they had in the week before their illness started. Eighteen (56%) of 32 people interviewed reported eating sprouts. This percentage is significantly higher than results from a survey of healthy people in which 8% reported eating sprouts in the week before they were interviewed.

Seventeen (63%) of 27 people interviewed reported eating sprouts at a Jimmy John's restaurant. Jimmy John's LLC reported that all of their restaurants stopped serving clover sprouts on February 24, 2020. Clover sprouts are no longer available at Jimmy John's restaurants.

Additionally, FDA identified the outbreak strain of *E. coli* O103 in samples of Chicago Indoor Garden products that contain sprouts. On March 16, 2020, Chicago Indoor Garden recalled all products containing red clover sprouts.

FDA's traceback investigation showed that a common seed lot was used to grow both the sprouts recalled by Chicago Indoor Garden and sprouts that were served at some Jimmy John's locations. The same seed lot was also used to grow sprouts linked to an outbreak of the same strain of *E. coli* O103 infections in 2019.

As of April 22, 2020, this outbreak appears to be over.