
Multistate Outbreak of Shiga toxin-producing *Escherichia coli* Infections Linked to Flour

Posted July 25, 2016 4:30PM EST

What's New?

- On July 25, 2016, General Mills expanded its recall (<http://www.generalmills.com/en/News/NewsReleases/Library/2016/July/flour-recall-update-7-25/960989ca-0015-4f60-ab57-34815bbc7d9a>) to include more production dates. A list of all the recalled flours and how to identify them is available on the Advice to Consumers page.
- Four more ill people have been reported from two states. The most recent illness started on June 25, 2016.
- An infection with another serotype, Shiga toxin-producing *Escherichia coli* (STEC O26), has been added to this outbreak investigation. STEC O26 was isolated from a sample of General Mills flour.
- One person has developed hemolytic uremic syndrome, a type of kidney failure.

Highlights

- **Read the Recall & Advice to Consumers, Restaurants, and Retailers>>**
- CDC, multiple states, and the U.S. Food and Drug Administration (<http://www.fda.gov/Food/RecallsOutbreaksEmergencies/Outbreaks/ucm504192.htm>) (FDA) are investigating a multistate outbreak of Shiga toxin-producing *Escherichia coli* (STEC) infections.
 - 46 people infected with the outbreak strains of STEC O121 or STEC O26 have been reported from 21 states.
 - Thirteen ill people have been hospitalized. One person developed hemolytic uremic syndrome, a type of kidney failure. No deaths have been reported.
- Epidemiologic, laboratory, and traceback evidence indicate that flour produced at the General Mills facility in Kansas City, Missouri is a likely source of this outbreak.

- Several recalls and recall expansions have been announced as a result of this investigation. On July 25, 2016, General Mills further expanded its flour recall (<http://www.generalmills.com/en/News/NewsReleases/Library/2016/July/flour-recall-update-7-25/960989ca-0015-4f60-ab57-34815bbc7d9a>) to include additional lots.
- A list of the recalled flours and how to identify them is available on the Advice to Consumers page.
- CDC recommends that consumers, restaurants, and retailers do not use, serve, or sell the recalled flours.
- Do not eat raw dough or batter, whether made from recalled flour or any other flour. Flour or other ingredients used to make raw dough or batter can be contaminated with STEC and other pathogens.
 - Consumers should bake all items made with raw dough or batter before eating them. Do not taste raw dough or batter.
 - Restaurants and retailers should not serve raw dough to customers or allow children and other guests to play with raw dough.
- This investigation is ongoing, and we will update the public when more information becomes available.

July 25, 2016

Case Count Update

Since the last update on July 1, 2016, four more ill people have been reported from two states. An infection with another serotype, Shiga toxin-producing *Escherichia coli* (STEC) O26, has been added to this outbreak investigation.

As of July 25, 2016, 46 people infected with the outbreak strains of STEC O121 (45 people) or STEC O26 (1 person) have been reported from 21 states. A list of states and the number of cases in each can be found on the [Case Count Map page](#).

Illnesses started on dates ranging from December 21, 2015 to June 25, 2016. Ill people range in age from 1 year to 95, with a median age of 18. Eighty percent of ill people are female. Thirteen ill people have been hospitalized. One person developed hemolytic uremic syndrome, a type of kidney failure. No deaths have been reported.

Illnesses that occurred after June 29, 2016, might not yet be reported due to the time it takes between when a person becomes ill and when the illness is reported to CDC. This takes an average of 2 to 3 weeks. Please see the [Timeline for Reporting Cases of *E. coli* O157 Infection](#) for more details.

Investigation Update

In July 2016, laboratory testing by General Mills and FDA isolated STEC O26 from a sample of General Mills flour. Whole genome sequencing (WGS) showed that the STEC O26 isolated from the flour sample was closely related genetically to isolates from an ill person. The flour tested was not included in the earlier General Mills recalls.

On July 25, 2016, General Mills expanded its recall

(<http://www.generalmills.com/en/News/NewsReleases/Library/2016/July/flour-recall-update-7-25/960989ca-0015-4f60-ab57-34815bbc7d9a>) to include more production

dates. CDC recommends that consumers, restaurants, and retailers do not use, serve, or sell the recalled flours.

This investigation is ongoing. CDC will update the public when more information becomes available.

▼ July 1, 2016

Case Count Update

Since the last update on June 1, 2016, four more ill people have been reported from four states.

As of June 28, 2016, 42 people infected with the outbreak strain of STEC O121 have been reported from 21 states. A list of states and the number of cases in each can be found on the [Case Count Map page](#).

Illnesses started on dates ranging from December 21, 2015 to June 8, 2016. Ill people range in age from 1 year to 95, with a median age of 18. Eighty-one percent of ill people are female. Eleven ill people have been hospitalized. No one has developed hemolytic uremic syndrome, a type of kidney failure, and no deaths have been reported.

This outbreak can be illustrated with a chart showing the number of people who became ill each day. This chart is called an [epidemic curve or epi curve](#). Illnesses that occurred after June 2, 2016, might not yet be reported due to the time it takes between when a person becomes ill and when the illness is reported to CDC. This takes an average of 2 to 3 weeks. Please see the [Timeline for Reporting Cases of *E. coli* O157 Infection](#) for more details.

Investigation Update

In June 2016, laboratory testing by the [U.S. Food and Drug Administration \(FDA\)](#)

(<http://www.fda.gov/Food/RecallsOutbreaksEmergencies/Outbreaks/ucm504192.htm>) isolated STEC O121 from samples of General Mills flour collected from the home of an ill person in

Oklahoma. The STEC O121 isolated from the flour sample has the same PFGE pattern, or DNA fingerprint, as the outbreak strain. The flour collected in Oklahoma was not included in the initial General Mills recall.

In the same month, FDA identified STEC O121 in an open sample of General Mills flour collected from the homes of ill people in Colorado and Arizona. Whole genome sequencing (WGS) showed that the STEC O121 isolates from the flour samples were closely related genetically to the STEC O121 isolates from ill people. The flour sample that was tested came from lots of flour included in the initial recall announced by General Mills.

On July 1, 2016, General Mills expanded the recall to include some flours sold under the same brand names included in the initial recall: Gold Medal Flour, Gold Medal Wondra Flour, and Signature Kitchens Flour. CDC recommends that consumers, restaurants, and retailers do not use, serve, or sell the recalled flours.

The investigation is ongoing. CDC will update the public when more information becomes available.

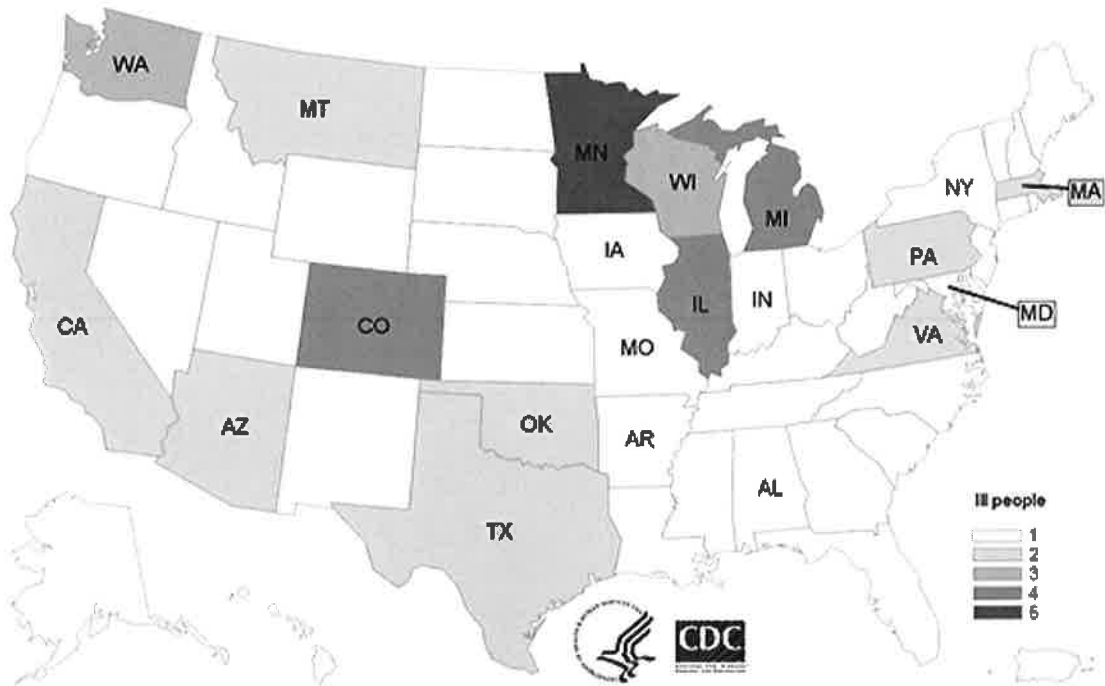
> Initial Announcement

At A Glance

- Case Count: 46
- States: 21
- Deaths: 0
- Hospitalizations: 13
- Recall: Yes

More Information

- Recall & Advice to Consumers and Retailers
- Signs & Symptoms
- Key Resources



[CLICK TO VIEW CASE COUNT MAPS](#)

Number of People

