



Centers for Disease Control and Prevention
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E. coli (Escherichia coli)

Multistate Outbreak of Shiga toxin-producing *Escherichia coli* O121 Infections Linked to Farm Rich Brand Frozen Food Products (Final Update)

Posted May 30, 2013 01:00 PM ET

This particular outbreak appears to be over. However, *E. coli* is still an important cause of human illness in the United States. More information about *E. coli*, and steps people can take to reduce their risk of infection, can be found on the [CDC *E. coli* Web Page \(/ecoli/general/index.html\)](#).

At a Glance:

- **Case Count: 35** ([/ecoli/2013/O121-03-13/epi.html](#))
- **States: 19** ([/ecoli/2013/O121-03-13/map.html](#))
- **Deaths: 0**
- **Hospitalizations: 9**
- **Recall: Yes** ([/ecoli/2013/O121-03-13/advice-consumers.html](#))

More Information:

- ([/ecoli/2012/O157H7-11-12/advice-consumers.html](#)) [Recall & Advice to Consumers \(/ecoli/2013/O121-03-13/advice-consumers.html\)](#)
- [Signs & Symptoms \(/ecoli/2013/O121-03-13/signs-symptoms.html\)](#)
- [Key Resources \(/ecoli/2013/O121-03-13/key-resources.html\)](#)

Highlights

- **[Read the Advice to Consumers » \(/ecoli/2013/O121-03-13/advice-consumers.html\)](#)**
- A total of 35 persons infected with the outbreak strain of Shiga toxin-producing *Escherichia coli* O121 (STEC O121) were reported from 19 states.
 - 82% of ill persons were 21 years of age or younger.
 - 31% of ill persons were hospitalized. Two ill persons developed hemolytic uremic syndrome (HUS), a type of kidney failure, and no deaths were reported.
- Collaborative investigative efforts of local, state, and federal public health and regulatory agencies indicated Farm Rich brand frozen food products were the source of this outbreak.
 - On April 4, 2013, [Rich Products Corporation expanded its recall to include all Farm Rich, Market Day, and Schwan's brand frozen food products](#) ([http://www.fsis.usda.gov/News & Events/Recall 025 2013 Expanded/index.asp](http://www.fsis.usda.gov/News%20&%20Events/Recall%20025%202013%20Expanded/index.asp)) (<http://www.cdc.gov/Other/disclaimer.html>) produced at its Waycross, Georgia plant between July 1, 2011 and March 29, 2013 due to possible contamination with *E. coli* O121.

- The recalled products had “Best By” dates ranging from January 1, 2013 to September 29, 2014.
- This outbreak appears to be over. However, the recalled products have a long shelf-life, and they may still be in peoples’ freezers.
 - Consumers should check their freezers for recalled products and not eat them.
 - This is especially important for children under 5 years, older adults, and people with weak immune systems because they are more likely to develop a serious illness.
- *E.coli* is an important cause of human illness in the United States. More information about *E. coli* and steps people can take to reduce their risk for infection can be found on the CDC *E. coli* homepage (<http://www.cdc.gov/ecoli/index.html>).

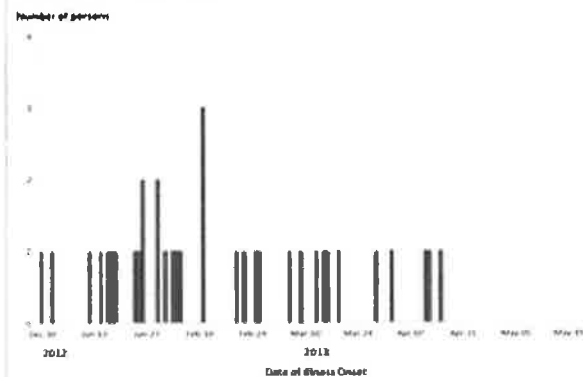
Latest Case Count Map



[\(/ecoli/2013/O121-03-13/map.html\)](http://www.cdc.gov/ecoli/2013/O121-03-13/map.html)

[Click map to view updated & previous case count maps. \(/ecoli/2013/O121-03-13/map.html\)](http://www.cdc.gov/ecoli/2013/O121-03-13/map.html)

Latest Epi Curve



[\(/ecoli/2013/O121-03-13/epi.html\)](http://www.cdc.gov/ecoli/2013/O121-03-13/epi.html)

[Click graph to view updated & previous epi curve graphs. \(/ecoli/2013/O121-03-13/epi.html\)](http://www.cdc.gov/ecoli/2013/O121-03-13/epi.html)

Outbreak Summary ↑ (#top)

Introduction

CDC collaborated with public health officials in several states, the U.S. Department of Agriculture’s Food Safety and Inspection Service (USDA-FSIS), and the U.S. Food and Drug Administration (FDA) to investigate a multistate outbreak of Shiga toxin-producing *Escherichia coli* O121 (STEC O121) infections linked to Farm Rich brand frozen food products produced by Rich Products Corporation of Buffalo, New York.

Public health investigators used DNA "fingerprints" of *E. coli* bacteria obtained through diagnostic testing with pulsed-field gel electrophoresis (PFGE) to identify cases of illness that were part of this outbreak. They used data from PulseNet (<http://www.cdc.gov/pulsenet>), the

national subtyping network made up of state and local public health laboratories and federal food regulatory laboratories that performs molecular surveillance of foodborne infections.

A total of 35 individuals infected with the outbreak strain of STEC O121 were reported from 19 states. The number of ill persons identified in each state was as follows: Alabama (1), Arkansas (1), California (1), Colorado (1), Florida (2), Illinois (2), Indiana (2), Michigan (3), Missouri (1), Mississippi (1), New York (4), Ohio (6), Pennsylvania (1), South Dakota (1), Texas (3), Utah (1), Virginia (1), Washington (1), and Wisconsin (2).

Illness onset dates ranged from December 30, 2012 to April 15, 2013. Ill persons ranged in age from less than 1 year to 75 years, with a median age of 17 years. Eighty-two percent of ill persons were 21 years of age or younger. Sixty percent of ill persons were female. Among 29 persons for whom information was available, 9 (31%) were hospitalized. Two ill people developed hemolytic uremic syndrome (HUS), a type of kidney failure, and no deaths were reported.

This outbreak appears to be over. However, many of these products have a long shelf-life, and they may still be in peoples' freezers. Consumers unaware of the recall could continue to eat these products and potentially get sick.

E. coli is an important cause of human illness in the United States. More information about *E. coli* and steps people can take to reduce their risk for infection can be found on the [CDC *E. coli* homepage \(/ecoli/\)](#).

Investigation of the Outbreak

Epidemiologic, laboratory, and traceback investigations conducted by officials in local, state, and federal public health, agriculture, and regulatory agencies linked this outbreak to Farm Rich brand frozen food products.

State and federal public health officials interviewed ill persons to obtain information regarding foods they might have eaten and other exposures in the week before illness. Twenty-four (100%) of 24 ill persons interviewed reported consuming frozen food products. Thirteen (68%) of 19 ill persons reported consuming Farm Rich brand frozen food products.

The outbreak strain of STEC O121 was identified in two different Farm Rich brand frozen products collected from the homes of two ill persons in New York and Texas.

On April 4, 2013, [Rich Products Corporation recalled all of its Farm Rich, Market Day, and Schwan's brand frozen food products](#)

([http://www.fsis.usda.gov/News & Events/Recall_025_2013_Expanded/index.asp](http://www.fsis.usda.gov/News%20&%20Events/Recall_025_2013_Expanded/index.asp))

(<http://www.cdc.gov/Other/disclaimer.html>) produced at its Waycross, Georgia plant between June 1, 2011 and March 29, 2013 due to possible contamination with *E. coli* O121.

USDA-FSIS and FDA investigated suppliers of the common ingredients in the various types of Farm Rich brand frozen products consumed by ill persons, but the source of contamination was not identified. Rich Products Corporation is not currently producing products at its Waycross, Georgia plant, while the company continues to work with USDA-FSIS to develop a plan to make food safety improvements.

[Progression of the Outbreak Investigation ↑ \(#onpage\)](#)

May 30, 2013

Final Case Count Update

A total of 35 individuals infected with the outbreak strain of STEC O121 were reported from 19 states. There were no new illnesses reported since the last update.

Illness onset dates ranged from December 30, 2012 to April 15, 2013. Ill persons ranged in age from less than 1 year to 75 years, with a median age of 17 years. Eighty-two percent of ill persons were 21 years of age or younger. Sixty percent of ill persons were female. Among 29 persons for whom information was available, 9 (31%) were hospitalized. Two ill people developed hemolytic uremic syndrome (HUS), a type of kidney failure, and no deaths were reported.

May 10, 2013

Case Count Update

A total of 35 individuals infected with the outbreak strain of STEC O121 have been reported from 19 states. Three additional ill persons have been reported from Missouri (1) and Ohio (2).

Among persons for whom information is available, illness onset dates range from December 30, 2012 to April 15, 2013. Ill persons range in age from one year to 75 years, with a median age of 17 years. Eighty-two percent of ill persons are 21 years of age or younger. Sixty percent of ill persons are female. Among 29 persons with available information, 9 (31%) reported being hospitalized. Two ill people developed hemolytic uremic syndrome (HUS), a type of kidney failure, and no deaths have been reported.

Illnesses that occurred after April 10, 2013 might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Investigation Update

Twenty-four (100%) of 24 ill persons interviewed reported consuming frozen food products. Twelve (63%) of 19 ill persons reported consuming Farm Rich brand frozen food products. Investigations are ongoing to determine the specific types and sources of frozen food that might be linked with illness, as well as to determine which particular ingredients or components of these products may be contaminated.

April 26, 2013

Case Count Update

A total of 32 individuals infected with the outbreak strain of STEC O121 have been reported from 18 states. Five additional ill persons have been reported from California (1), Colorado (1), Florida (2), and Ohio (1).

Among persons for whom information is available, illness onset dates range from December 30, 2012 to April 2, 2013. Ill persons range in age from one year to 75 years, with a median age of 17 years. Eighty-one percent of ill persons are 21 years of age or younger. Fifty-six percent of ill persons are female. Among 26 persons with available information, 9 (35%) reported being hospitalized. Two ill people developed hemolytic uremic syndrome (HUS), a type of kidney failure, and no deaths have been reported.

Illnesses that occurred after March 30, 2013 might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

April 5, 2013

Case Count Update

A total of 27 individuals infected with the outbreak strain of STEC O121 have been reported from 15 states. Three new cases have been reported from Illinois (1), Michigan (1) and New York (1).

Among persons for whom information is available, illness onset dates range from December 30, 2012 to March 18, 2013. Ill persons range in age from 2 years to 75 years, with a median age of 17 years. Eighty-one percent of ill persons are 21 years of age or younger. Fifty-six percent of ill persons are female. Among 23 persons with available information, 8 (35%) reported being hospitalized. Two ill people developed hemolytic uremic syndrome (HUS), a type of kidney failure, and no deaths have been reported.

Illnesses that occurred after March 10, 2013 might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported.

Investigation Update

Twenty (100%) of 20 ill persons interviewed reported consuming frozen food products. Ten (63%) of 16 ill persons reported consuming Farm Rich brand frozen food products. Investigations are ongoing to determine the specific types and sources of frozen food that might be linked with illness, as well as to determine which particular ingredients or components of these products may be contaminated.

Testing conducted by the Outbreaks Section of the USDA-FSIS Eastern Laboratory identified the outbreak strain of STEC O121 from individually wrapped Farm Rich brand frozen mini pizza slices from an opened package collected from an ill person's home in Texas. The frozen mini pizza slices were included in the products that were recalled on March 28, 2013.

Initial Announcement

March 29, 2013

CDC is collaborating with public health officials in many states, the U.S. Department of Agriculture's Food Safety and Inspection Service (USDA-FSIS), and the U.S. Food and Drug Administration (FDA) to investigate a multistate outbreak of Shiga toxin-producing *Escherichia coli* O121 (STEC O121) infections. Public health investigators are using DNA "fingerprints" of *E. coli* bacteria obtained through diagnostic testing with pulsed-field gel electrophoresis, or PFGE, to identify cases of illness that could be part of this outbreak. They are using data from [PulseNet \(/pulsenet/\)](http://pulsenet/), the national subtyping network made up of state and local public health laboratories and federal food regulatory laboratories that performs molecular surveillance of foodborne infections.

The type of bacteria responsible for this outbreak is among those referred to as Shiga toxin-producing *E. coli* or STEC. Some types of STEC frequently cause severe disease, including bloody diarrhea and hemolytic uremic syndrome (HUS), which is a type of kidney failure. STEC bacteria are divided into serogroups (e.g., O157 or O121). *E. coli* O157 is the STEC serogroup found most commonly in U.S. patients. Other *E. coli* serogroups in the STEC

group, including O121, are sometimes called "non-O157 STECs." Because clinical laboratories typically cannot directly identify non-O157 STEC serogroups, they must first test stool samples for the presence of Shiga toxins. Then, the positive samples must be sent to public health laboratories to look for non-O157 STEC. In recent years, the number of clinical laboratories that test for Shiga toxin has increased greatly, but some laboratories still do not perform these tests. Because of these complexities, many non-O157 STEC infections are probably not identified. The STEC O121 PFGE pattern in this outbreak is rare. In the past it has been seen less than 30 times in PulseNet.

A total of 24 individuals infected with the outbreak strain of STEC O121 have been reported from 15 states. The number of ill persons identified in each state is as follows: Alabama (1), Arkansas (1), Illinois (1), Indiana (2), Michigan (2), Mississippi (1), New York (3), Ohio (3), Pennsylvania (1), South Dakota (1), Texas (3), Utah (1), Virginia (1), Washington (1), and Wisconsin (2).

Among persons for whom information is available, illness onset dates range from December 30, 2012 to March 9, 2013. Ill persons range in age from 2 years to 75 years, with a median age of 17 years. Seventy-eight percent of ill persons are 21 years of age or younger. Sixty-three percent of ill persons are female. Among 21 persons with available information, 7 (33%) reported being hospitalized. One ill person developed HUS, and no deaths have been reported.

The outbreak can be visually described with a chart showing the number of people who became ill each day or week. [This chart is called an epi curve \(/ecoli/2013/O121-03-13/epi.html\)](/ecoli/2013/O121-03-13/epi.html). Illnesses that occurred after March 1, 2013 might not be reported yet due to the time it takes between when a person becomes ill and when the illness is reported. This takes an average of 2 to 3 weeks. For more details, please see [Timeline for Reporting E. coli Cases \(/ecoli/reporting-timeline.html\)](/ecoli/reporting-timeline.html).

Investigation of the Outbreak

Epidemiologic, laboratory, and traceback investigations conducted by officials in local, state, and federal public health, agriculture, and regulatory agencies indicate that Farm Rich brand frozen food products are one likely source of this outbreak of STEC O121 infections.

In interviews, ill persons answered questions about food consumed and other exposures during the week before becoming ill. Eighteen (100%) of 18 ill persons interviewed reported consuming frozen food products. Eight (57%) of 14 ill persons reported consuming Farm Rich brand frozen food products. Investigations are ongoing to determine the specific types and sources of frozen food that might be linked with illness, as well as to determine which particular ingredients or components of these products may be contaminated.

The New York State Department of Health, Wadsworth Center Laboratory, identified the outbreak strain of *E. coli* O121 in an opened package of Farm Rich brand frozen mini chicken and cheese quesadillas from an ill person's home.

CDC and state and local public health partners are continuing laboratory surveillance through PulseNet to identify additional ill persons and to interview ill persons about foods eaten before becoming ill. FSIS and FDA are continuing to work closely with CDC and state partners during this investigation.

Content source: Centers for Disease Control and Prevention
National Center for Emerging and Zoonotic Infectious Diseases (NCEZID)
Division of Foodborne, Waterborne, and Environmental Diseases (DFWED)

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