



Centers for Disease Control and Prevention

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Salmonella

Multistate Outbreak of *Salmonella* Saintpaul Infections Linked to Imported Cucumbers (Final Update)

Posted June 20, 2013 4:00 PM ET

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

At a Glance:

- **Case Count: 84** (</salmonella/saintpaul-04-13/epi.html>)
- **States: 18** (</salmonella/saintpaul-04-13/map.html>)
- **Deaths: 0**
- **Hospitalizations: 17**
- **Recall: No**

More Information:

- [Advice to Consumers \(/salmonella/saintpaul-04-13/advice-consumers.html\)](/salmonella/saintpaul-04-13/advice-consumers.html)
- [Signs & Symptoms \(/salmonella/saintpaul-04-13/signs-symptoms.html\)](/salmonella/saintpaul-04-13/signs-symptoms.html)
- [Key Resources \(/salmonella/saintpaul-04-13/key-resources.html\)](/salmonella/saintpaul-04-13/key-resources.html)

Highlights

- **[Read the Advice to Consumers » \(/salmonella/saintpaul-04-13/advice-consumers.html\)](/salmonella/saintpaul-04-13/advice-consumers.html)**
- A total of 84 persons infected with the outbreak strain of *Salmonella* Saintpaul were reported from 18 states.
 - 28% of ill persons were hospitalized, and no deaths were reported.
- Collaborative investigative efforts of local, state, and federal public health and regulatory agencies indicated that imported cucumbers supplied by Daniel Cardenas Izabal and Miracle Greenhouse of Culiacán, Mexico were the source of this outbreak.
 - On April 24, 2013, the U.S. Food and Drug Administration placed both cucumber suppliers on [Import Alert](#) (http://www.accessdata.fda.gov/cms_ia/importalert_266.html) [↗](#) (<http://www.cdc.gov/Other/disclaimer.html>).
 - Cucumbers from these two firms will be denied admission into the United States unless the suppliers show that they are not contaminated with *Salmonella*.
- Consumers and retailers should always [follow safe produce handling recommendations](#) (<http://www.fda.gov/Food/ResourcesForYou/Consumers/ucm114299.htm>) [↗](#) (<http://www.cdc.gov/Other/disclaimer.html>).
- This particular outbreak appears to be over. However, *Salmonella* is an important cause of human illness in the United States. More information about *Salmonella*

infection, and steps people can take to reduce their risk of infection, can be found on the [CDC *Salmonella* Web Page \(/salmonella/general/prevention.html\)](http://salmonella/general/prevention.html).

Latest Case Count Map

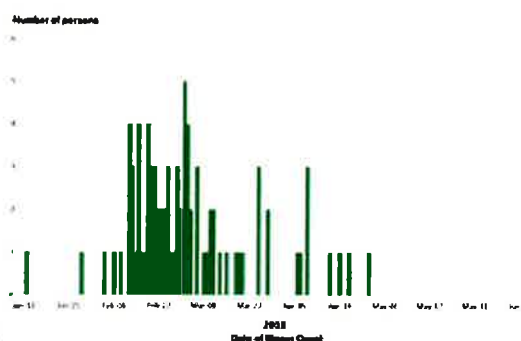


[\(/salmonella/saintpaul-04-13/map.html\)](http://salmonella/saintpaul-04-13/map.html)

[\(/salmonella/saintpaul-04-13/map.html\)](http://salmonella/saintpaul-04-13/map.html)

Click map to view updated & previous case count maps. [\(/salmonella/saintpaul-04-13/map.html\)](http://salmonella/saintpaul-04-13/map.html)

Latest Epi Curve



[\(/salmonella/saintpaul-04-13/epi.html\)](http://salmonella/saintpaul-04-13/epi.html)

[\(/salmonella/saintpaul-04-13/epi.html\)](http://salmonella/saintpaul-04-13/epi.html)

Click graph to view updated & previous epi curve graphs. [\(/salmonella/saintpaul-04-13/epi.html\)](http://salmonella/saintpaul-04-13/epi.html)

Outbreak Summary

Introduction

CDC collaborated with public health officials in many states and the U.S. Food and Drug Administration (FDA) to investigate a multistate outbreak of *Salmonella* Saintpaul infections linked to imported cucumbers supplied by Daniel Cardenas Izabal and Miracle Greenhouse of Culiacán, Mexico and distributed by Tricar Sales, Inc. of Rio Rico, Arizona.

Public health investigators used DNA "fingerprints" of *Salmonella* bacteria obtained through diagnostic testing with pulsed-field gel electrophoresis (PFGE) to identify cases of illness that may be part of this outbreak. They used data from 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. This PFGE pattern has rarely been seen before in PulseNet and in the past typically caused 0-5 cases per year.

A total of 84 persons infected with the outbreak strain of *Salmonella* Saintpaul were reported from 18 states. The number of ill persons identified in each state was as follows: Arizona (11), California (29), Colorado (2), Idaho (2), Illinois (3), Louisiana (1), Maryland (1), Massachusetts (1), Minnesota (9), Nevada (1), New Mexico (2), North Carolina (3), Ohio (3), Oregon (2), South Dakota (2), Texas (7), Virginia (3), and Wisconsin (2).

Among persons for whom information was available, illness onset dates ranged from January 12, 2013 to April 28, 2013. Ill persons ranged in age from less than 1 year to 89 years, with a median age of 27 years. Sixty-two percent of ill persons were female. Among 60 persons with available information, 17 (28%) were hospitalized. No deaths were reported.

Investigation of the Outbreak

Epidemiologic and traceback investigations conducted by officials in local, state, and federal public health, agriculture, and regulatory agencies linked this outbreak to imported cucumbers supplied by Daniel Cardenas Izabal and Miracle Greenhouse of Culiacán, Mexico and distributed by Tricar Sales, Inc. of Rio Rico, Arizona.

In interviews, ill persons answered questions about foods consumed and other exposures in the 7 days before becoming ill. Thirty-four (69%) of 49 ill persons interviewed reported eating various types of cucumbers purchased or consumed at multiple locations or restaurants. This proportion was significantly higher than results from a survey of healthy persons in which 44% reported eating cucumbers in the 7 days before they were interviewed.

Reviewing shipping records collected with assistance from partner state agencies, FDA traced cucumbers eaten by six ill people to the distributor, Tricar Sales, Inc., and further, to the suppliers, Daniel Cardenas Izabal and Miracle Greenhouse. On April 24, 2013, the suppliers were placed on Import Alert (http://www.accessdata.fda.gov/cms_ia/importalert_266.html)  (<http://www.cdc.gov/Other/disclaimer.html>). Cucumbers from these two firms will be denied admission into the United States unless the suppliers show that they are not contaminated with *Salmonella*.

This particular outbreak appears to be over. However, *Salmonella* is still an important cause of human illness in the United States. More information about *Salmonella* and steps people can take to reduce their risk for infection can be found on the CDC *Salmonella* web page ([/salmonella/](http://salmonella/)).

Progression of the Outbreak Investigation

June 20, 2013

Final Case Count Update

A total of 84 persons infected with the outbreak strain of *Salmonella* Saintpaul were reported from 18 states. Since the last update, three new ill persons were reported from Arizona (2) and California (1).

Among persons for whom information was available, illness onset dates ranged from January 12, 2013 to April 28, 2013. Ill persons ranged in age from less than 1 year to 89 years, with a median age of 27 years. Sixty-two percent of ill persons were female. Among 60 persons with available information, 17 (28%) were hospitalized. No deaths were reported.

May 8, 2013

Case Count Update

A total of 81 persons infected with the outbreak strain of *Salmonella* Saintpaul have been reported from 18 states. Since the last update, 8 new ill persons have been reported from Arizona (2), Minnesota (1), North Carolina (2), Ohio (2), and Virginia (1). This PFGE pattern has rarely been seen before in PulseNet and in the past typically caused 0-5 cases per year.

Among persons for whom information was available, illness onset dates range from January 12, 2013 to April 19, 2013. Ill persons range in age from less than 1 year to 89 years, with a median age of 27 years. Sixty-three percent of ill persons are female. Among 56 persons with available information, 16 (29%) ill persons have been hospitalized. No deaths have been reported.

Illnesses that occurred after April 7, 2013 might not yet be reported 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.

Initial Announcement

April 25, 2013

CDC is collaborating with public health officials in many states and the U.S. Food and Drug Administration (FDA) to investigate an outbreak of *Salmonella* Saintpaul infections linked to imported cucumbers supplied by Daniel Cardenas Izabal and Miracle Greenhouse of Culiacán, Mexico and distributed by Tricar Sales, Inc. of Rio Rico, Arizona.

Public health investigators are using the PulseNet (<http://www.cdc.gov/pulsenet/>) system to identify cases of illness that may be part of this outbreak. In PulseNet, the national subtyping network of public health and food regulatory agency laboratories coordinated by CDC, DNA "fingerprints" of *Salmonella* bacteria are obtained through diagnostic testing with pulsed-field gel electrophoresis, or PFGE, to identify cases of illness that may be part of this outbreak.

A total of 73 persons infected with the outbreak strain of *Salmonella* Saintpaul have been reported from 18 states. The number of ill persons identified in each state is as follows: Arizona (9), California (28), Colorado (1), Idaho (2), Illinois (3), Louisiana (1), Massachusetts (1), Maryland (1), Minnesota (8), Nevada (1), New Mexico (2), North Carolina (1), Ohio (1), Oregon (2), South Dakota (2), Texas (6), Virginia (2), and Wisconsin (2).

Among persons for whom information was available, illness onset dates range from January 12, 2013 to April 6, 2013. Ill persons range in age from less than 1 year to 80 years, with a median age of 23 years. Sixty percent of ill persons are female. Among 51 persons with available information, 14 (27%) ill persons have been hospitalized. No deaths have been reported.

This outbreak can be visually described with a chart showing the number of persons who became ill each day. This chart is called an epidemic curve or epi curve (</salmonella/saintpaul-04-13/epi.html>). Illnesses that occurred after March 23, 2013 might not yet be reported 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. Please see the *Salmonella* Outbreak Investigations: Timeline for Reporting Cases (/salmonella/outbreaks/reporting_timeline.html) for more details.

Investigation of the Outbreak

Preliminary epidemiologic, laboratory, and traceback investigations conducted by officials in local, state, and federal public health, agriculture, and regulatory agencies indicate that exposure to imported cucumbers supplied by Daniel Cardenas Izabal and Miracle Greenhouse of Culiacán, Mexico and distributed by Tricar Sales, Inc. of Rio Rico, Arizona is the likely source of this outbreak of *Salmonella* Saintpaul infections.

In interviews, ill persons answered questions about foods eaten and other exposures during the week before becoming ill. Thirty (67%) of 45 ill persons interviewed reported eating various

types of cucumbers purchased or consumed at multiple locations or restaurants. This proportion is significantly higher than results from a [survey of healthy persons](#)  [PDF - 787 KB] ([/foodnet/surveys/FNExpAtlo3022011.pdf](http://foodnet/surveys/FNExpAtlo3022011.pdf)) in which 44% reported eating cucumbers in the 7 days before they were interviewed. An additional 5 (11%) of 45 ill persons reported that they may have eaten cucumbers. No other foods that were reported eaten by interviewees were associated with illness.

Reviewing shipping records, with assistance from its partner state agencies, FDA traced cucumbers eaten by six ill people to the distributor, Tricar Sales, Inc., and further, to the suppliers, Daniel Cardenas Izabal and Miracle Greenhouse. On April 24, 2013, the suppliers were placed on [Import Alert](http://www.accessdata.fda.gov/cms_ia/importalert_266.html) (http://www.accessdata.fda.gov/cms_ia/importalert_266.html)  (<http://www.cdc.gov/Other/disclaimer.html>). Cucumbers from these two firms will be denied admission into the United States unless the suppliers show that they are not contaminated with *Salmonella*.

The number of illnesses reported has declined substantially since a peak in early March. Currently, there is no evidence that contaminated cucumbers are still on the market. However, due to the time it takes between when a person becomes ill and when the illness is reported, additional ill persons may be identified. 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 with before becoming ill.

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Content source: [Centers for Disease Control and Prevention](#)

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