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# Multistate Outbreak of Listeriosis Linked to Commercially Produced, Prepackaged Caramel Apples Made from Bidart Bros. Apples (Final Update)

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Posted February 12, 2015 4:30 PM ET

This outbreak appears to be over. However, recalled products may still be in people's homes. Consumers unaware of the recalls could continue to eat the products and get sick. Read the [Advice to Consumers](#).

## Highlights

- [Read the Advice to Consumers and Retailers](#)>>
- This outbreak appears to be over. However, recalled products may still be in people's homes. Consumers unaware of the recalls could continue to eat the products and get sick.
- On January 6, 2015, Bidart Bros. of Bakersfield, California voluntarily recalled (<http://www.fda.gov/Safety/Recalls/ucm429689.htm>) Granny Smith and Gala apples because environmental testing revealed contamination with *Listeria monocytogenes* at the firm's apple-packing facility.
  - On January 18, 2015, FDA laboratory analyses using whole genome sequencing (WGS) showed that these *Listeria* isolates were highly related to the outbreak strains.
- Happy Apples (<http://www.fda.gov/Safety/Recalls/ucm428106.htm>), California Snack Foods (<http://www.fda.gov/Safety/Recalls/ucm428157.htm>), and Merb's Candies (<http://www.fda.gov/safety/recalls/ucm428310.htm>) each announced a voluntary recall of commercially produced, prepackaged caramel apples.
- A total of 35 people infected with the outbreak strains of *Listeria monocytogenes* were reported from 12 states.
  - Of these, 34 people were hospitalized. Listeriosis contributed to at least three of the seven deaths reported.
  - Eleven illnesses were pregnancy-related (occurred in a pregnant woman or her newborn infant), with one illness resulting in a fetal loss.
  - Three invasive illnesses (meningitis) were among otherwise healthy children aged 5–15 years.

- Twenty-eight (90%) of the 31 ill people interviewed reported eating commercially produced, prepackaged caramel apples before becoming ill.
- The Public Health Agency of Canada (PHAC) identified one case of listeriosis (<http://www.phac-aspc.gc.ca/phn-asp/2014/listeria-eng.php>) in Canada that is genetically related to the U.S. outbreak.

## Previous Updates

### ∨ Outbreak Summary

#### Introduction

CDC collaborated with public health officials in several states and with the [U.S. Food and Drug Administration \(FDA\)](#) (<http://www.fda.gov/Food/RecallsOutbreaksEmergencies/Outbreaks/ucm427573.htm>) to investigate an outbreak of *Listeria monocytogenes* infections (listeriosis). Joint investigation efforts indicated that commercially produced, prepackaged caramel apples made from Bidart Bros. apples were the likely source of this outbreak. *Listeria* can cause a serious, life-threatening illness. People at higher risk for listeriosis include adults 65 years or older, people with weakened immune systems, and pregnant women.

Public health investigators used the [PulseNet](http://www.cdc.gov/pulsenet/index.html) (<http://www.cdc.gov/pulsenet/index.html>) 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 *Listeria* bacteria isolated from ill people using techniques called [pulsed-field gel electrophoresis](http://www.cdc.gov/pulsenet/pathogens/pfge.html) (<http://www.cdc.gov/pulsenet/pathogens/pfge.html>) (PFGE) and [whole genome sequencing](http://www.cdc.gov/amd/) (<http://www.cdc.gov/amd/>) (WGS). WGS gives a more detailed DNA fingerprint than PFGE. PulseNet manages a national database of these DNA fingerprints to identify possible outbreaks of enteric illness. Two outbreak clusters were identified by the PFGE technique. When WGS was used, two *Listeria* isolates (one within each cluster) were found to be highly related but distinct between the two clusters. CDC investigated the two clusters together because one person was infected with both *Listeria* strains simultaneously and also because illnesses in the two clusters occurred during a similar time period and in similar regions of the country.

The 35 ill people included in this outbreak investigation were reported from 12 states: Arizona (5), California (3), Colorado (1), Minnesota (4), Missouri (5), Nevada (1), New Mexico (6), North Carolina (1), Texas (4), Utah (1), Washington (1), and Wisconsin (3). Illness onset dates ranged from October 17, 2014, to January 6, 2015. Eleven illnesses were associated with a pregnancy (occurred in a pregnant woman or her newborn infant). One fetal loss was reported. Among people whose illnesses were not associated with a pregnancy, ages ranged from 7 to 92 years, with a median age of 62 years, and 33%

were female. Three invasive illnesses (meningitis) occurred among otherwise healthy children aged 5–15 years. Thirty-four people were hospitalized, and listeriosis contributed to at least three of the seven deaths reported.

The outbreak can be visually described with a chart showing the number of people who were diagnosed each day. This chart is called an epidemic curve or epi curve (<http://www.cdc.gov/foodsafety/outbreaks/investigating-outbreaks/epi-curves.html>).

The Public Health Agency of Canada (PHAC) identified two cases of listeriosis (<http://www.phac-aspc.gc.ca/phn-asp/2014/listeria-eng.php>) in Canada with the same PFGE patterns as those seen in the U.S. outbreak. More detailed testing using WGS showed that the isolate from only one of the two cases was genetically related to the U.S. outbreak. That person reported eating a caramel apple.

### Investigation of the Outbreak

In interviews, ill people answered questions about foods consumed and other exposures in the month before becoming ill. Twenty-eight (90%) of the 31 ill people interviewed reported eating commercially produced, prepackaged caramel apples before becoming ill. Caramel apple brands named in interviews included Happy Apples, Carnival, and Merb's Candies. However, other brands may also have been consumed. The three ill people interviewed who did not report eating caramel apples did report eating whole or sliced green apples not covered in caramel. However, most (about 60%) of the general US population report eating apples [PDF - 29 pages]

(<http://www.cdc.gov/foodnet/PDFs/FNExpAtl03022011.pdf>) during a given week. The source of the reported whole or sliced green apples is unknown, and it is unknown whether these apples were linked to the patients' illnesses.

On January 6, 2015, Bidart Bros. of Bakersfield, California, voluntarily recalled (<http://www.fda.gov/Safety/Recalls/ucm429689.htm>) Granny Smith and Gala apples because environmental testing revealed contamination with *Listeria monocytogenes* at the firm's apple-packing facility. The recall included all Granny Smith and Gala apples shipped from its Shafter, California, packing facility in 2014. On January 8, 2015, FDA laboratory analyses using PFGE showed that environmental *Listeria* isolates from the Bidart Bros. facility were indistinguishable from the outbreak strains. On January 18, 2015, WGS found that these isolates were highly related to the outbreak strains. In addition, WGS showed that *Listeria* isolates from whole apples produced by Bidart Bros., collected along the distribution chain, also were highly related to the outbreak strains. CDC recommends that consumers not eat any of the recalled Granny Smith and Gala apples produced by Bidart Bros. and retailers not sell or serve them.

Three firms that produce caramel apples issued voluntary recalls after receiving notice from Bidart Bros. that there may be a connection between Bidart Bros. apples and this listeriosis outbreak. On December 24, 2014, Happy Apple Company of Washington, Missouri, voluntarily recalled Happy Apples brand caramel apples (<http://www.fda.gov/Safety/Recalls/ucm428106.htm>) with a best use by date between August 25 and November 23, 2014. On December 31, 2014, Happy Apple Company

expanded the recall ([http://www.fda.gov/Safety/Recalls/ucm428852.htm?source=govdelivery&utm\\_medium=email&utm\\_source=govdelivery](http://www.fda.gov/Safety/Recalls/ucm428852.htm?source=govdelivery&utm_medium=email&utm_source=govdelivery)) to include Kroger brand caramel apples produced by Happy Apple Company with a best use by date between September 15 and November 18, 2014. On December 27, 2014, California Snack Foods voluntarily recalled Karm'l Dapple brand caramel apples (<http://www.fda.gov/Safety/Recalls/ucm428157.htm>) with a best use by date between August 15 and November 28, 2014. On December 29, 2014, Merb's Candies of St. Louis, Missouri issued a voluntary recall of Merb's Candies Bionic Apples and Double Dipped Apples (<http://www.fda.gov/Safety/Recalls/ucm428310.htm>) that would have been available from September 8 through November 25, 2014.

This outbreak appears to be over. However, recalled products may still be in people's homes. Consumers unaware of the recalls could continue to eat the products and get sick.

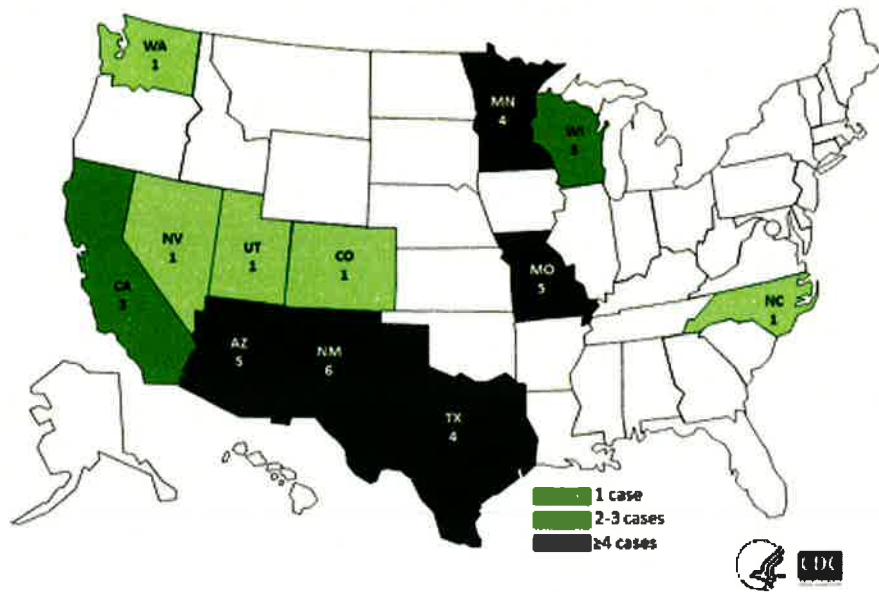
- > January 8, 2015
- > December 31, 2014
- > December 22, 2014
- > Initial Announcement

#### At a Glance:

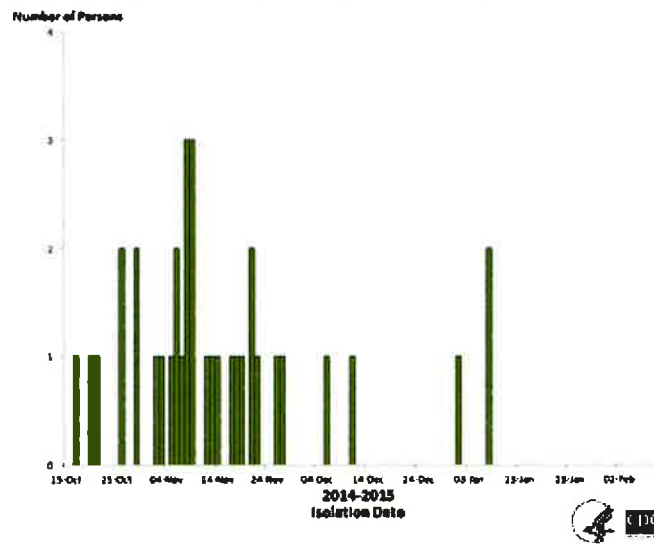
- Case Count: 35
- States: 12
- Deaths: 7
- Hospitalizations: 34
- Recall: Yes

#### More Information:

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



[CLICK TO VIEW CASE COUNT MAP.](#)



[CLICK TO VIEW EPI CURVE GRAPHS.](#)



## Caramel Apples

CDC recommends that U.S. consumers do not eat any commercially produced, prepackaged caramel apples that were made with Bidart Bros. apples produced in 2014.

### File Formats Help:

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(<http://www.cdc.gov/Other/plugins/>)

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National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) (</ncezid/>)

Division of Foodborne, Waterborne, and Environmental Diseases (DFWED) (</ncezid/dfwed/index.html>)