

Outbreak Investigation of *Listeria monocytogenes*: Enoki Mushrooms (March 2020)

FDA's investigation is complete. CDC declares outbreak over.

The FDA, along with CDC and state and local partners investigated a multistate outbreak of *Listeria monocytogenes* infections linked to enoki mushrooms from Green Co, LTD. of the Republic of Korea. Enoki mushrooms are a long thin white mushroom, usually sold in clusters. They are especially popular in East Asian cuisine and are also known as enokitake, golden needle, futu, or lily mushrooms.

Recommendations

Recalled enoki mushrooms from Sun Hong Foods, Inc., Guan's Mushroom Co., and H&C Food, Inc. are past their shelf-life and should no longer be available.

FDA recommends that anyone who received recalled products use extra vigilance in cleaning and sanitizing any surfaces and containers that may have come in contact with these products to reduce the risk of cross-contamination. *Listeria* can survive in refrigerated temperatures and can easily spread to other foods and surfaces.

Investigation Update

June 9, 2020

As of June 9, 2020, the CDC declared that this outbreak appears to be over.

[Previous Updates](#)

Product Images







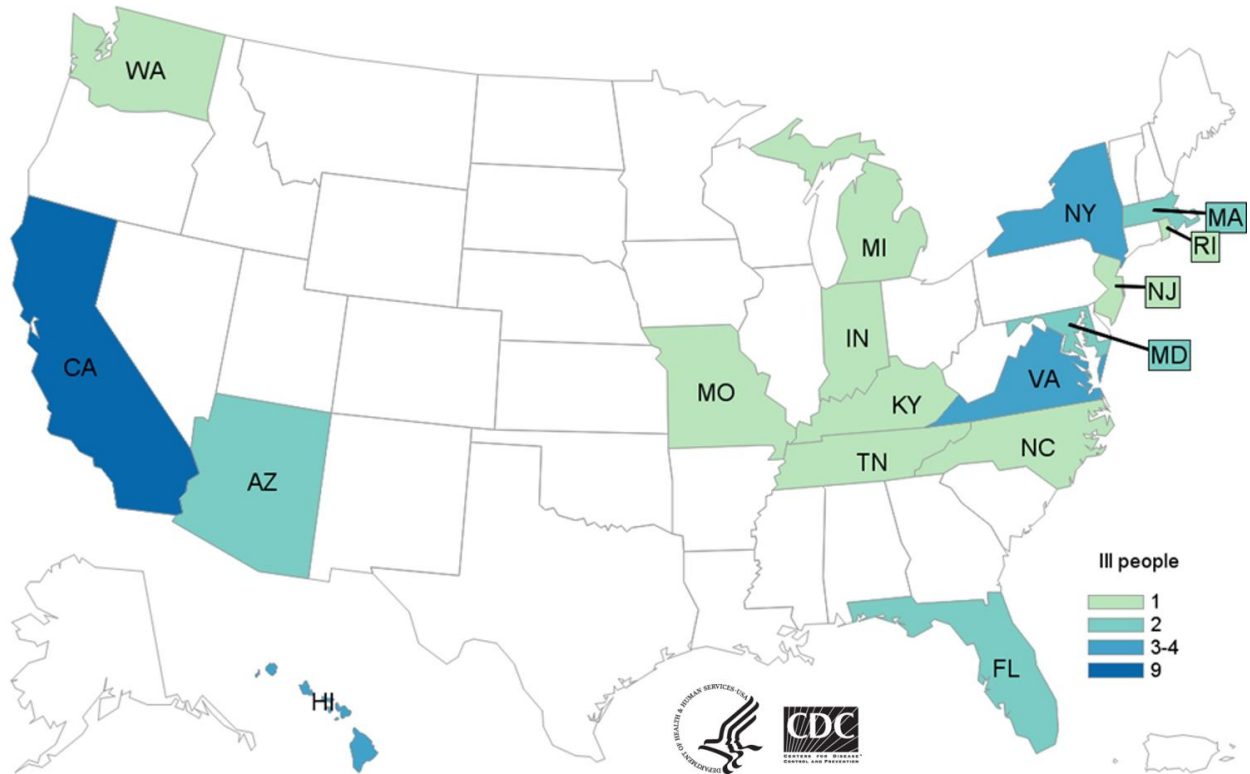


Recall Information

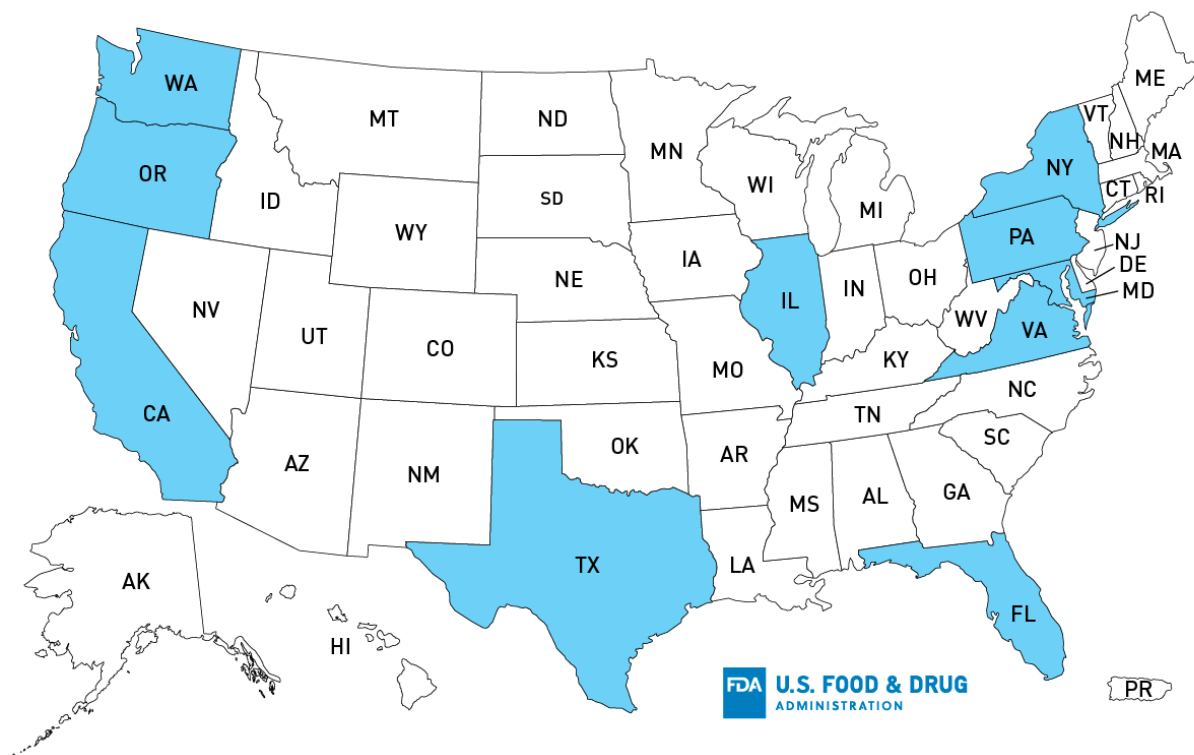
Company	Size	UPC Code	Retailers*	Distribution*
Sun Hong Foods, Inc.	200 g/ 7.05 oz.	7 426852 625810	J&L Supermarket, Jusgo Supermarket, ZTao Market, New Sang Supermarket, Galleria Market, Distributors	CA, FL, IL, OR, TX, WA
Guan's Mushroom Co.	200 g/ 7.05 oz.	859267007013	Sold to Distributors and Wholesalers	CA, NY, PA
H&C Food Inc.	200 g/ 7.05 oz.	831211204181	Great Wall Supermarket	NY, MD, VA

*This includes confirmed distribution information from companies; products could have been further distributed and sent to additional retailers and states.

Case Count Map Provided by CDC



U.S. Distribution Map of Recalled Enoki Mushrooms



This map includes confirmed distribution information from companies; products could have been further distributed and sent to additional retailers and states.

Case Counts

Total Illnesses: 36

Hospitalizations: 31

Deaths: 4

Illness Onset Date Range: November 23, 2016 - December 13, 2019

States with Cases: AZ (2), CA (9), FL (2), HI (3), IN (1), KY (1), MA (2), MD (2), MI (1), MO (1), NC (1), NJ (1), NY (4), RI (1), TN (1), VA (3), WA (1)

Product Distribution*: CA, FL, IL, NY, MD, OR, PA, TX, VA, WA

*States with confirmed distribution; product could have been distributed further

Previous Investigation Updates

April 17, 2020

The California Department of Public Health found that a sample of enoki mushrooms distributed by Guan's Mushroom Co. was positive for *Listeria monocytogenes*. Whole genome sequencing analysis

of the sample has now confirmed that the *Listeria monocytogenes* found in these mushrooms matched the outbreak strain. Guan's Mushroom Co. recalled all cases of its 200 g/7.05 oz packages of enoki mushrooms imported from Korea (Republic of Korea) on March 23, 2020.

On April 7, 2020, H&C Foods Inc. recalled 200 g/7.05 oz packages of enoki mushrooms imported from Green Co. LTD of the Republic of Korea. FDA import samples of enoki mushrooms from Green Co. LTD tested positive for *Listeria monocytogenes* and on April 6, 2020, whole genome sequencing analysis determined that the *Listeria monocytogenes* found in the positive samples matched the outbreak strain. As a result, Green Co. LTD was placed on [Import Alert 99-23 on April 7, 2020 and Import Alert 99-35 on April 15, 2020](#), which flag imported shipments from this firm for potential detention without physical examinations. Import Alert 99-23 applies to produce that appears to bear or contain a poisonous or deleterious substance which may render it injurious to health, and Import Alert 99-35 applies to produce that appears to have been prepared, packed, or held under insanitary conditions. The FDA is encouraging the international community to consult these Import Alerts.

The investigation is ongoing to determine the source of contamination and if additional products are linked to illness. Additional information will be provided as it becomes available.

April 15, 2020

FDA, CDC, and state and local partners are currently investigating a multistate outbreak of *Listeria monocytogenes* infections linked to enoki mushrooms. Enoki mushrooms are a long thin white mushroom, usually sold in clusters. They are especially popular in East Asian cuisine and are also known as enokitake, golden needle, futu, or lily mushrooms.

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April 8, 2020

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The investigation is ongoing to determine the source of contamination and if additional products are linked to illness. Additional information will be provided as it becomes available.

March 27, 2020

FDA, CDC, and state and local partners are currently investigating a multistate outbreak of *Listeria monocytogenes* infections linked to enoki mushrooms. Enoki mushrooms are a long thin white mushroom, usually sold in clusters. They are especially popular in East Asian cuisine and are also known as enokitake, golden needle, futu, or lily mushrooms.

On March 23, 2020 Guan's Mushroom Co. recalled all cases of its 200 g/7.05 oz packages of enoki mushrooms imported from Korea (Republic of Korea). The firm recalled product and ceased distribution after the California Department of Public Health found that a sample of these mushrooms was positive for *Listeria monocytogenes*. At this time, whole genome sequencing analysis is being conducted to determine whether or not enoki mushrooms from Guan's Mushroom Co. are linked to this outbreak.

On March 18, 2020, the Korean Ministry of Food and Drug Safety (MFDS) issued a press release on their findings related to *Listeria monocytogenes* and enoki mushrooms. The government of the Republic of Korea investigated four companies that export enoki mushrooms to the United States and detected *Listeria monocytogenes* in enoki mushrooms produced by two firms in Korea. The Korean MFDS did not name the firms in the press release; the FDA is working to obtain this information. The Korean MFDS did not link product to any illnesses in Korea.

The Korean MFDS has recommended that enoki mushrooms should be cooked before being consumed and starting March 23, 2020, the Korean MFDS will require large production companies of enoki mushrooms to include additional labelling indicating that they should be cooked.

On March 9, 2020, Sun Hong Foods, Inc. [recalled](#) all enoki mushrooms imported from Korea (Republic of Korea). The firm recalled product after the Michigan Department of Agriculture and Rural Development found that a sample of these mushrooms was positive for *Listeria monocytogenes*. Whole genome sequencing analysis of the sample found that the *Listeria monocytogenes* found in these mushrooms matched the outbreak strain.

The investigation is ongoing to determine the source of contamination and if additional products are linked to illness. Additional information will be provided as it becomes available.

March 10, 2020

FDA, CDC, and state and local partners are currently investigating a multistate outbreak of *Listeria monocytogenes* infections linked to enoki mushrooms. Enoki mushrooms are a long thin white mushroom, usually sold in clusters. They are especially popular in East Asian cuisine and are also known as enokitake, golden needle, futu, or lily mushrooms.

State and local public health officials interviewed ill people about the foods they ate in the month before they became ill. Twelve out of 22 (55%) reported eating mushrooms, including enoki, portobello, white, button, cremini, wood ear, maitake, and oyster. Additionally, the *Listeria monocytogenes* in the enoki mushrooms distributed by Sun Hong Foods, Inc. was determined, by

whole genome sequencing, to be a genetic match to the outbreak strain when tested by Michigan Department of Agriculture and Rural Development.

The investigation is ongoing and additional information will be provided as soon as it becomes available.