



Red Book[®] Online

Red Book Online Outbreaks: Salmonella Outbreak Linked to Ground Beef

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Overview

This outbreak is over as of August 23, 2023.

As of August 23, 2023, a total of 18 people have been infected in a multistate outbreak of *Salmonella* illnesses linked to ground beef: ([Multistate Salmonella Outbreak Linked to Ground Beef](#) | CDC). Illnesses started on dates ranging from April 27, 2023, through June 16, 2023.

Investigators are working to identify the source of the ground beef sick people ate. All of the people who remembered the type of ground beef they ate and where they bought it reported eating 80% lean ground beef purchased from ShopRite locations in **Connecticut**, **New Jersey**, and **New York** before they got sick. Ground beef is a [known source of Salmonella illnesses](#). *Salmonella* germs live in the intestines of people and animals and can be spread through contaminated food, water, food preparation surfaces, and unwashed hands. *Salmonella* germs are killed when ground beef is cooked to an internal temperature of 160°F. Eating raw or undercooked ground beef can make people sick.

Clinical Guidance

- **Presentation:** Most people infected with *Salmonella* experience diarrhea, fever, and stomach cramps. Symptoms typically start 6 hours to 6 days after swallowing the bacteria. Most people recover without treatment after 4 to 7 days.
- **Who is at highest risk/complications:** The incidence of non-typhoidal *Salmonella* (NTS) infection is highest in children younger than 4 years of age. In the United States, rates of invasive infections and mortality are higher in infants, elderly people, and people with hemoglobinopathies (including sickle cell disease) and immunocompromising conditions (eg, malignant neoplasms, HIV infection).
- **Patients should be seen by their pediatrician** if they present with the following symptoms of *Salmonella* infection:
 - Diarrhea and a fever higher than 102°F
 - Diarrhea for more than 3 days that is not improving
 - Bloody diarrhea

- Not tolerating oral liquids
- Signs of dehydration, such as:
 - Decreased urine output
 - Dry mucous membranes
 - Orthostatic hypotension
- **Diagnosis:** Isolation of *Salmonella* organisms from cultures of stool, blood, urine, bile (including duodenal fluid containing bile), and material from foci of infection is diagnostic. *Salmonella* gastroenteritis is diagnosed by stool culture or molecular testing (including PCR); stool testing should be obtained in all children with bloody diarrhea or unexplained persistent or severe diarrhea. [See Red Book Salmonella diagnostic tests.](#)
- **Risk Mitigation:** People should follow these four food safety steps to prevent getting sick from *Salmonella*.
 - Clean:
 - Wash any bowls, utensils, and surfaces that touch raw ground beef with soap and water before using them to prepare other foods.
 - Wash hands with soap and water for 20 seconds after preparing raw ground beef and before touching other kitchen items.
 - Separate:
 - When shopping, separate raw ground beef from other foods in the shopping cart and grocery bags. Place packages of raw ground beef into individual plastic bags to avoid cross-contamination.
 - Keep raw ground beef separate from foods that will not be cooked.
 - Store raw ground beef in a container or sealed, leakproof bag on the lowest shelf in the fridge or freezer.
 - Cook:
 - Use a food thermometer to make sure meat has been cooked to a temperature high enough to kill germs. Ground beef should be cooked to an internal temperature of 160°F, and leftovers should be heated to an internal temperature of 165°
 - Do not eat raw or undercooked ground beef.
 - Chill:
 - Raw ground beef that has been refrigerated should be used or frozen within 1 or 2 days.
 - Refrigerate or freeze ground beef within 2 hours of cooking. If the food is exposed to temperatures hotter than 90°F, like a hot car or picnic, refrigerate or freeze within 1 hour.
 - Freeze any meat that will not be used within a few days. Although freezing can help keep ground beef safe until it is cooked, it does not kill existing harmful germs.
 - Thaw frozen ground beef in the refrigerator, not on the counter.
- **Treatment:** Antimicrobial therapy usually is not indicated for patients with either asymptomatic infection or uncomplicated gastroenteritis caused by NTS, because therapy does not shorten the duration of diarrheal disease, can prolong duration of fecal shedding, and increases symptomatic relapse rate. Antimicrobial therapy *is* recommended for gastroenteritis caused by NTS serovars in people at increased risk for invasive disease, including infants younger than 3 months and people with chronic gastrointestinal tract disease, malignant neoplasms, hemoglobinopathies, HIV infection, or other immunosuppressive illnesses or therapies. It should also be considered for those experiencing severe symptoms such as severe diarrhea or prolonged or high fever. If antimicrobial therapy is initiated in patients in the United States with presumed or proven NTS gastroenteritis, a blood and a stool culture should be obtained prior to antibiotic administration and an initial dose of ceftriaxone should be given. The patient who does not appear ill or have evidence of disseminated infection can be discharged with oral azithromycin pending blood culture results. Once susceptibilities are available, ampicillin or trimethoprim-sulfamethoxazole may be considered for susceptible strains. A fluoroquinolone is an alternative option. For those who appear ill or have evidence of disseminated infection, hospitalization is required.

- **Reporting:** Suspected cases should be reported to the local department of public health.

Resources

- For more information see the *Red Book* chapter: [Salmonella](#) Infections

Pediatric Practice Tools and Information

[Salmonella](#) | CDC

Public Health Resources

Multistate [Salmonella](#) Outbreak Linked to Ground Beef | CDC

Infection Prevention and Control Resources

[Project Firstline](#) (aap.org)

Information for Patients and Caregivers

AAP HealthyChildren.org: [Salmonella Infections in Children](#) | In Spanish: [Infecciones por Salmonela](#)

AAP HealthyChildren.org: [Food Poisoning & Contamination](#) | In Spanish: [Intoxicación y contaminación alimentaria](#)