Salmonella

Human *Salmonella* Typhimurium Infections Linked to Exposure to Clinical and Teaching Microbiology Laboratories

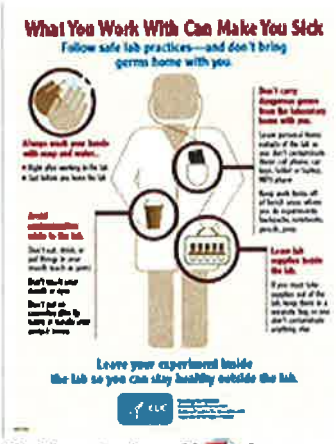
Posted June 5, 2014 12:00 PM ET

At a Glance:

- **Case Count: 41**
- **Deaths: 0**
- **Hospitalizations: 36%**

More Information:

- Advice to Students & Employees in Labs (/salmonella/typhimurium-labs-06-14/advice.html)
- Signs & Symptoms (/salmonella/typhimurium-labs-06-14/signs-symptoms.html)
- Key Resources (/salmonella/typhimurium-labs-06-14/key-resources.html)



Click here to view pdf. [PDF - 1 page] (/salmonella/pdf/CDC_LAI_Prevention_Poster_012313_508.pdf)

Highlights

- **Read the Advice to Students & Employees Working in Laboratories» (/salmonella/typhimurium-labs-06-14/advice.html)**
- A total of 41 persons infected with the same strains of *Salmonella* Typhimurium were reported from several states since November 1, 2013.
  - 62% of ill persons were ages 21 years of age or younger.
  - 36% of ill persons were hospitalized. No deaths were reported.
- Epidemiologic and laboratory findings linked these *Salmonella* Typhimurium infections to exposure to various clinical and college and university teaching microbiology laboratories.
- These strains of *Salmonella* Typhimurium have been associated with outbreaks linked to microbiology laboratory exposure in the past (/salmonella/typhimurium-laboratory/index.html) .

- Laboratory-associated salmonellosis continues to be a public health problem. This web posting serves as a reminder notice to be aware that bacteria used in microbiology laboratories can make you or others who live in your household sick, especially young children, even if they have never visited the laboratory.
    - Either non-pathogenic or attenuated bacterial strains should be used when possible, especially in teaching laboratories. This practice will help reduce the risk of students and/or their family members becoming ill.
- Guidance documents for work with *Salmonella* and other similar human pathogens can be found on the Key Resources page (/salmonella/typhimurium-labs-06-14/key-resources.html).
- Laboratories should consider posting this educational flyer [PDF - 1 page] (/salmonella/pdf/CDC_LAI_Prevention_Poster_012313_508.pdf) in an area of the laboratory where students and employees can frequently view it.

CDC Investigation Notice

June 5, 2014

CDC collaborated with public health officials in several states to investigate human *Salmonella* Typhimurium infections linked to exposure to various clinical and college and university teaching microbiology laboratories. Public health investigators used the PulseNet (/pulsenet/index.html) system to identify cases of illness that may be linked to microbiology laboratory exposure. PulseNet, the national subtyping network of public health and food regulatory agency laboratories coordinated by CDC, obtains DNA "fingerprints" of *Salmonella* bacteria through diagnostic testing with pulsed-field gel electrophoresis, or PFGE. These strains of *Salmonella* Typhimurium were indistinguishable by PFGE pattern from commercially available *Salmonella* Typhimurium strains used in laboratory settings for teaching or quality control purposes. These commercially available strains are known to be present in several teaching laboratories associated with ill persons.

A total of 41 persons infected with the same strains of *Salmonella* Typhimurium were reported from several states since November 1, 2013, including Illinois, Indiana, Kentucky, Maine, Massachusetts, Missouri, New Hampshire, New Jersey, Ohio, Pennsylvania, Virginia, Washington, and Wisconsin.

Among the persons who reported the date they became ill, illnesses began between November 1, 2013 and May 3, 2014. Ill persons ranged in age from younger than 1 year to 87 years, and the median age was 20 years. Sixty-two percent of ill persons were 21 years or younger. Seventy-six percent of ill persons were female. Among 28 ill persons with available information, 10 (36%) were hospitalized. No deaths were reported.

In interviews, ill persons answered questions about different exposures in the week before becoming ill. Eighteen (86%) of 21 ill persons interviewed reported being enrolled in either a human biology course or microbiology course. Fifteen (83%) of these 18 ill persons were students, and three (22%) were employees. Many ill persons reported several behaviors while they were working in the laboratory that would increase the risk of acquiring a *Salmonella* infection, including not wearing gloves or lab coats, lack of handwashing, and using the same writing utensils and notebooks outside of the laboratory. Additionally, many ill persons did not recall receiving laboratory safety training.

In 2011, a total of 109 illnesses with one of these same strains of *Salmonella* Typhimurium were linked to exposure to clinical and teaching microbiology laboratories (/salmonella/typhimurium-laboratory/index.html). Findings of that investigation indicated that teaching and clinical microbiology laboratory instructors should enhance training of students and staff on biosafety measures necessary in the laboratory. For more specific guidance documents, see the Key Resources page (/salmonella/typhimurium-labs-06-14/key-resources.html).

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