



Salmonella

What is *Salmonella*?

- Bacteria that can infect intestines.
- Typhoid fever is caused by a type of *Salmonella* infection that is more serious and can cause outbreaks but is uncommon in the United States.

What are the signs or symptoms?

- Diarrhea
- Fever
- Abdominal cramps and tenderness
- Nausea or vomiting
- Sometimes blood or mucus in stool

What are the incubation and contagious periods?

- Incubation period: 6 to 48 hours (for nontyphoidal *Salmonella* strains, those strains most commonly responsible for diarrhea in the United States).
- Contagious period: About half of children younger than 5 years still have *Salmonella* in their feces/stool 12 weeks after having this infection.

How is it spread?

- Fecal-oral route: Contact with feces of infected children and animals, especially reptiles, amphibians, and poultry, but also birds, rodents, other small mammals, farm animals, and even dogs and cats (see the specific list of animals in the section How do you control it?). This generally occurs when children touch a contaminated surface and then put their contaminated fingers in their own mouth and/or touch an object or put their contaminated fingers in the mouth of another person.
- Ingestion of contaminated food, water, meats, eggs, and unpasteurized milk.
- Contact with fecal material transferred to food preparation or other surfaces or objects contaminated by children or animals with *Salmonella*.

How do you control it?

- Use good hand-hygiene technique at all the times listed in Chapter 2, especially after toilet use or handling soiled diapers and before anything to do with food preparation or eating.
- Ensure proper surface disinfection that includes cleaning and rinsing of surfaces that may have become contaminated with stool (feces) with detergent and water and application of a US

Environmental Protection Agency–registered disinfectant according to the instructions on the product label.

- Animals that are known to carry *Salmonella* should not be allowed in an early childhood education (ECE) program or school facility. *Salmonella* is a normal bacterial inhabitant of the intestinal tract of many animals without making the animals sick. Cages and all surfaces involved in the care of these animals should be considered contaminated with *Salmonella*. These objects are a common source of spread of *Salmonella* infection to children in educational settings. The animals most known to commonly spread *Salmonella* to humans include reptiles (turtles, lizards, and snakes), amphibians (frogs and toads), poultry (chicks, chickens, ducklings, ducks, geese, and turkeys).
- Use proper sanitation methods for food processing, preparation, and service. Special attention is necessary to avoid contamination by raw poultry of surfaces such as cutting boards and utensils.
- Eggs and other foods of animal origin, especially poultry, should be cooked thoroughly.
- Exclude infected staff members who handle food.
- Exclusion for specific types of symptoms (see the section Exclude from educational setting?).

What are the roles of the educator and the family?

- A child or staff member with *Salmonella* may have bloody diarrhea. Bloody diarrhea should trigger a medical evaluation.
- There are multiple causes of bloody diarrhea. Until the cause of the diarrhea is identified, apply the recommendations for a child or staff member with diarrhea from any cause (see Diarrhea Quick Reference Sheet).
 - Report the condition to the staff member designated by the ECE program or school for decision-making and action related to care of ill children or staff members. That person, in turn, alerts possibly exposed family and staff members to watch for symptoms and notifies the Child Care Health Consultant.
 - Ensure staff members follow the control measures listed in the section How do you control it?
 - Report outbreaks of diarrhea (more than 2 children and/or staff members in the group) to the Child Care Health Consultant, who may report to the local health department.

- If you know a child in the program has *Salmonella*
 - Follow advice from the child’s health professional and care for the ill child.
 - Report the infection to the local health department, as the health professional who makes the diagnosis may not report that the infected child is a participant in an ECE program or school, and this could delay controlling the spread of the disease.
 - Reeducate staff members to ensure strict and frequent handwashing, as well as proper diapering, toileting, food handling, cleaning, and disinfection procedures.
 - In an outbreak (rare), follow the directions of the local health department.
- Prevent contact of young children with animals known to spread *Salmonella* to humans and the habitat of these animals (see the section How do you control it?). Pet dogs and cats should be tested to be sure they are not carriers of *Salmonella* before allowing these animals into the ECE program or school facility. (Ensure immediate hand hygiene if there has been any contact with any of these animals.)

Exclude from educational setting?

Yes, if

- The local health department determines exclusion of an infected child or staff member is needed to control an outbreak.
- Stool is not contained in the diaper for diapered children.
- Diarrhea is causing “accidents” for toilet-trained children.
- Stool frequency exceeds 2 stools above normal for that child during the time the child is in the program because this may cause too much work for educators and make it difficult for them to maintain sanitary conditions.
- There is blood or mucus in stool of the child or of a staff member with diarrhea.
- The ill child’s stool is all black.

- The child has a dry mouth, no tears, or no urine output in 8 hours (suggesting the child’s diarrhea may be causing dehydration).
- The child is unable to participate and staff members determine they cannot care for the child without compromising their ability to care for the health and safety of the other children in the group.
- The child meets other exclusion criteria (see Conditions Requiring Temporary Exclusion in Chapter 4).

Readmit to educational setting?

Yes, when all the following criteria are met:

- Most types of *Salmonella* (exception is serotype Typhi) do not require negative test results from stool cultures.
- Three negative test results from stool cultures are needed for children with S Typhi.
- Once diapered children have their stool contained by the diaper (even if the stools remain loose) and when toilet-trained children do not have toileting accidents.
- Once stool frequency is no more than 2 stools above normal for that child during the time the child is in the program, even if the stools remain loose.
- When the child is able to participate and staff members determine they can care for the child without compromising their ability to care for the health and safety of the other children in the group.
- When an infected staff member is judged by health department staff to no longer pose a risk to others in the facility.

Comments

- Despite the presence of *Salmonella* in the stool for prolonged periods after infection, outbreaks in educational settings are rare.
- Antibiotics usually are not indicated because they do not shorten duration of diarrheal disease and may prolong the time *Salmonella* is in the stool after the symptoms of infection have resolved.

