SALMONELLOSIS

REPORTING INFORMATION

- Class A(2)
- Report by the end of the next business day
- Confidential Case Report Card (3812.11, rev. 12/81), lab report (3833.11), or telephone
- Symptomatic, and asymptomatic cases are reportable
- The Enteric Case Report may be useful in follow-up of cases. Do not send this report to ODH. It is for local health department use only.

AGENT

Over 2000 serotypes of *Salmonella* are known. *Salmonella* serotype Typhimurium and *Salmonella* serotype Enteritidis account for more than half of all human *Salmonella* isolates typed in Ohio.
NOTE: *Salmonella* serotype Typhi is the agent of typhoid fever.

Infectious Dose

In general, it is 100-1000 organisms, but fewer organisms can sometimes cause infection.

CASE DEFINITION

Clinical description

An illness of variable severity commonly manifested by diarrhea, abdominal pain, nausea, and sometimes vomiting. Asymptomatic infections may occur and the organism may cause extraintestinal infections.

Lab criteria for diagnosis

Isolation of *Salmonella* from a clinical specimen.

Case classification

Probable: a clinically compatible case that is epidemiologically linked to a confirmed case.
Confirmed: a case that is laboratory confirmed.

Comment

Both asymptomatic infections and infections at sites other than the gastrointestinal tract, if laboratory confirmed, are considered confirmed cases that should be reported.

SIGNS AND SYMPTOMS

An acute gastrointestinal illness characterized by headache, diarrhea, fever, and sometimes vomiting. Infection can progress from gastroenteritis to septicemia or a focal infection (e.g., cholecystitis, meningitis, etc.).

DIAGNOSIS

Salmonellosis is diagnosed by isolating the organism from stool, blood or other body fluid. Serology tests are not useful for diagnosis. Most hospital laboratories have the ability to identify *Salmonella.* If testing is to be performed at the ODH Lab, use Cary Blair transport media, available from ODH Lab. In some cases, testing of cases or contacts can be done by the ODH Lab without charge. To obtain a fee exemption, contact the Division of Prevention, Infectious Disease Investigation Section, and provide the names of persons for whom this testing is being requested. Confirmation and serotyping of isolates is available free of charge at ODH Laboratory. Clinical labs are asked to send all *Salmonella* isolates to ODH Lab for serotyping and PFGE analysis. This is important for identifying and investigating outbreaks and to provide data on the incidence of *Salmonella* serotypes.

EPIDEMIOLOGY

Source

Animals and humans are the reservoir of *Salmonella*. Food and water can be contaminated with *Salmonella* from animals or their waste. Raw meats and shell eggs can be contaminated with *Salmonella*. Raw produce can be contaminated from raw meat juices or animal feces (e.g., through contaminated irrigation water, during transport or processing).

Occurrence
Salmonellosis occurs worldwide. In Ohio, there is a slight increase in mid-summer. Most recognized cases occur in children under 5 years of age, adults 20-39 years, and adults over 60 years. All ages are at risk.

Mode of transmission
Humans can acquire *Salmonella* directly (via the fecal-oral route) from animals (e.g. pets, livestock, reptiles) or from ingestion of contaminated food or water. Direct person-to-person transmission can occur via the fecal-oral route but is uncommon.

Period of communicability
Salmonella is shed in the feces while the patient is acutely ill and perhaps for a week or two after symptoms end. Antibiotic use might prolong the period of shedding. The carrier state develops in ≤ 5% of patients.

Incubation period
The incubation period is 6-72 hours, usually 12-36 hours.

PUBLIC HEALTH MANAGEMENT

Case

Investigation

All cases reported to the local health department should initially be followed up with a telephone call to obtain demographic and epidemiologic data. No further work-up is recommended if neither the case nor any household member is employed in a sensitive occupation (direct food handling, direct patient care, employee in child care center who handles food or directly cares for children) or attends a child care center, unless there is evidence that the case is part of an outbreak.

Treatment

Antibiotics are generally not administered in cases of uncomplicated gastroenteritis, as they can lead to the carrier state. Antibiotic treatment may be indicated for salmonellosis in infants, the elderly, or those with underlying medical conditions.

Isolation and Follow up Specimens

Section 3701-3-13 of the Ohio Administrative Code states:
"A person infected with one of the following specified diseases or conditions shall be isolated as set forth below:

> (V) Salmonellosis, where the person works in a sensitive occupation or is a child in a child care center. Such a person shall be excluded from work or the child care center and may return only when the following conditions are met:
>
> > (1) The child may return to a child care center and the person may return to work in the sensitive occupation if his or her diarrhea has ceased, provided that his or her duties do not include food handling.
> >
> > (2) A person who is a food handler may only return to work after his or her diarrhea has ceased and after two consecutive follow-up stool specimens are negative for Salmonella."

Obtain the first specimen no sooner than 48 hours after cessation of diarrhea or, if being treated, at least 48 hours after completion of antibiotic therapy. Obtain the remaining specimen(s) at least 24 hours apart.

Contacts
Any household member who has diarrhea and is employed in a sensitive occupation or attends a child care center should be tested for *Salmonella.*

Prevention and Control
All meat and egg dishes should be thoroughly cooked. Avoid cross-contamination of food (especially

raw fruits and vegetables) with raw meat juices. Hand washing after contact with animals can help prevent salmonellosis. Chicks, ducklings and all reptiles, which might be *Salmonella* carriers, are inappropriate pets for small children.

Thorough hand washing should be emphasized, especially after bowel movements, after changing diapers, and before eating or preparing food.

Foodhandlers
Symptomatic persons should be excluded from work. As detailed in **Isolation**, above, foodhandlers may only return to work after diarrhea has ceased and two consecutive follow-up stool specimens are negative for *Salmonella.*

Food Service Operation rules also pertain to this situation. Salmonellosis is a disease which can be transmitted through food. Persons infected with a disease that is communicable by food are not permitted to work as a food handler (see OAC 3701-21-06, A).

Patient Care Workers, Child Care Workers, and Children who attend child care centers
Symptomatic persons should be excluded from work. As detailed in **Isolation** above, children who attend child care centers and persons who work in sensitive occupations may return when diarrhea has ceased, provided their duties do not include food handling.

Child care center outbreak control
Whenever a case of salmonellosis has been identified in a child care center attendee or worker, staff and children who are symptomatic and in the same classroom as the case should be cultured for *Salmonella.* Arrangements to have this testing done at ODH Lab can be made by calling the Infectious Disease Investigation Section at (614) 466-0265. Reptiles are not appropriate pets for child-care centers (see below).

Special Information
Persons with diarrhea of infectious or unknown cause (e.g. confirmed or suspected cases of salmonellosis) are not permitted to work in sensitive occupations, according to OAC 3701-3-13, I, which states: [A person with] "Diarrhea, infectious or of unknown cause, where the person works in a sensitive occupation or attends a child care center. Such a person shall be excluded from work or the child care center and only may return after his or her diarrhea has ceased." " 'Sensitive occupation' means direct food handling, direct patient care, the handling of food or provision of direct care to children in a child care center, or any other occupation which provides significant opportunity for an infected individual to transmit infectious disease agents." (OAC 3701-3-01, R).

Recommendations for Preventing Transmission of Salmonella from reptiles to humans
1. Persons at increased risk for infection or serious complications of salmonellosis (e.g. pregnant women, children aged <5 years, and immunocompromised persons such as persons with AIDS) should avoid contact with reptiles.
2. Reptiles should not be kept in child-care centers and might not be appropriate pets in households in which persons at increased risk for infection reside.
3. Veterinarians and pet store owners should provide information to potential purchasers and owners of reptiles about the increased risk of acquiring salmonellosis from reptiles.
4. Veterinarians and operators of pet stores should advise reptile owners always to wash their hands after handling reptiles and reptile cages.
5. To prevent contamination of food-preparation areas (e.g., kitchens) and other selected sites, reptiles should be kept out of these areas--in particular, kitchen sinks should not be used to bathe reptiles or to wash reptile dishes, cages, or aquariums.
(Source: Reptile-associated Salmonellosis--Selected States, 1994-1995, *MMWR*, May 5, 1995, Vol. 44, No. 17).