

Salmonellosis

(Nontyphoidal *Salmonella*)

PROTOCOL CHECKLIST

- Enter available information into Merlin upon receipt of initial report
- Review information on the disease and its epidemiology (see [page 2](#)), surveillance case definition (see [page 4](#)), and laboratory testing (see [page 5](#))
- Prioritize reported cases for follow up, and investigate and interview as appropriate (see [page 6](#))
 - Contact provider, if necessary, to gather more information
 - Interview patient
 - Review disease facts (see [page 2](#))
 - Modes of transmission
 - Incubation period
 - Symptoms
 - Ask about exposure to relevant risk factors (see [page 9](#))
 - Travel
 - Consumption of raw or undercooked meat, poultry, eggs
 - Consumption of raw or unpasteurized milk or dairy products
 - Consumption of raw, potentially contaminated produce
 - Restaurant meals
 - Food at public gatherings
 - Source(s) of drinking water
 - Recreational water exposure
 - Contact with reptiles or amphibians
 - Contact with pets, livestock, or other animals
 - Contact with diapered children with diarrhea
 - Occupational exposure
 - Identify symptomatic contacts
 - Determine if an infected patient or symptomatic contact is in a sensitive situation (see [page 12](#))
 - Recommend exclusions for those infected or symptomatic contacts (see [page 12](#))
 - Provide education on controlling further spread for symptomatic patients (see [page 10](#))
 - Practice proper hand hygiene
 - People with diarrhea should not prepare food for others
 - People with diarrhea should not use recreational water venues
 - Address patient's questions or concerns
- Follow-up on special situations, including outbreaks or infected persons in relevant sensitive situations (see [page 12](#))
- Enter additional data obtained from interview into Merlin (see [page 10](#))

Salmonellosis

1. DISEASE REPORTING

A. Purpose of reporting and surveillance

1. To detect individual people with salmonellosis in such a way that public health, medical, or behavioral action can prevent spread from the reported patient.
2. To detect outbreaks of illnesses due to these agents, early enough to make a difference to the course of the outbreak.
3. To allow a better understanding of the descriptive epidemiology of cases, in order to be able to focus primary case prevention efforts, and formulate better prevention strategies.
4. To detect outbreaks of illnesses due to these agents, in order to understand better the events that lead to outbreaks and thus be able to focus outbreak prevention efforts (for possible future outbreaks). Note that there are numerous other ways that outbreaks are commonly detected, and this is not the most common.

B. Legal reporting requirements

Laboratories and physicians are required to report persons infected with *Salmonella* to the county health department (CHD) within one working day of identification/diagnosis. Reports should not be delayed for serotyping or final laboratory confirmation.

C. County health department investigation responsibilities

1. Prioritize reported cases for follow-up (**see [Section 5](#) for more information**):
 - a. Group 1: cases in people where information available at the time of the initial case-report indicates they are part of an outbreak or are in a sensitive situation. Sensitive situations for enteric diseases generally include attendees or employees of a daycare/childcare setting, food handlers, or employees in a healthcare setting with direct patient care.
 - b. Group 2: cases in people whose case-report is received while they are likely to still be symptomatic and infectious. **See [Section 5B, item 2b](#) for more information on determining whether a person is likely to still be symptomatic.**
 - c. Group 3: all other reported cases.
2. Follow up with prioritized cases and administer appropriate measures to control further spread, as appropriate. **See [Section 6](#) for recommendations on controlling further spread.**
3. Report all confirmed and probable cases in Merlin.

4. Review reported cases by street address, reporting source, race, ethnicity, age group, onset or report date, etc., to detect possible clusters of infected individuals.

2. THE DISEASE AND ITS EPIDEMIOLOGY

A. Etiologic agent

Salmonella organisms are gram-negative bacilli. Current taxonomy puts organisms causing human infection into the species *Salmonella enterica*. *S. enterica* can be classified serologically into several subspecies designated by Roman numerals (I–VI), and sub-classified into serogroups designated by number (1–67) or formerly by letter (A–Z). Further sub-classification into more than 2000 serotypes is done at state public health laboratories.

Subspecies I serotypes are given names (e.g., Enteritidis) while subspecies II–VI serotypes are designated by antigenic formulae (e.g., *S. IV 48:g, z51*). To emphasize that they are not separate species, the serotype names are not italicized and the first letter is capitalized. You will often see these serotypes referred to casually as *S. Enteritidis*, *S. Saintpaul*, *S. Typhimurium*, etc., but their proper designation would be, for example, *S. enterica* serotype Enteritidis. While a few serotypes are relatively host or place specific, giving clues as to origin, most are widely distributed in nature and therefore do not indicate their epidemiological origin.

B. Description of illness

Nontyphoidal salmonellosis is characterized by diarrhea, nausea, headache, and sometimes vomiting. Fever is almost always present. Bloody diarrhea and invasive disease may occur, particularly with certain serotypes. Invasive infection may present as urinary tract infection, septicemia, abscess, arthritis, cholecystitis, and rarely as endocarditis, pericarditis, meningitis, or pneumonia.

Note that typhoid infections (caused by *S. Typhi*) cause typhoid fever, not salmonellosis. *S. Paratyphi* can cause a milder systemic illness similar to typhoid fever including fever, anorexia, lethargy, malaise, headache, nonproductive cough, abdominal pain, and constipation or diarrhea.

C. Reservoirs

Salmonella organisms are widely distributed in the animal kingdom, including livestock, pets, wild mammals, poultry and other birds, reptiles, and amphibians. Most infected animals are chronic carriers. In contrast, *S. Typhi* has only human reservoirs as does *S. Paratyphi* (with the exception of B variant L[+] tartrate+).

D. Modes of transmission

Transmission is fecal-oral and vehicle-borne. Infection may result from ingesting food or water that has been contaminated with human or animal feces, or from direct exposure to animals or their waste. Intact (uncracked) chicken eggs can be infected transovarially. *S. Paratyphi* and other serogroups can occur in the urine as a rare

route of transmission. A large dose of the bacteria is usually needed to cause infection, although there have been documented outbreaks with much lower inocula. Thus, contaminated foods handled in ways that permit multiplication of organisms (e.g., inadequate refrigeration and/or inadequate cooking) are vehicles of transmission. The infectious dose may be lower for children, the elderly, the immunocompromised, antibiotic users, and those with achlorhydria or regular antacid use.

Commonly recognized vehicles or mechanisms of transmission include:

- Inadequately cooked or raw meat, poultry, or eggs.
- Other foods cross-contaminated with any of the above.
- Contaminated produce (e.g., sprouts, cantaloupe, mangos).
- Unpasteurized milk or milk products.
- Contact with the feces of pets and other infected animals.
- Contaminated and inadequately treated drinking water.

Person-to-person transmission is common, particularly when a person is symptomatic. Spread can occur when an infected person fails to wash their hands thoroughly after defecation.

E. Incubation period

From six to 72 hours, but usually about 12-36 hours. Longer incubation periods up to 16 days have been documented and may not be uncommon following low-dose ingestion. For *S. Paratyphi* usually 1–10 days.

F. Period of communicability

As long as organisms are excreted in the feces, ranging from days to months. Concentrations (and hence, infectivity) are typically highest during the time of overt symptoms. Rarely, the carrier state may exceed a year. *Antibiotic treatment often prolongs the period of bacterial excretion in the feces.*

G. Treatment

Fluid and electrolyte replacement (oral or IV) is the mainstay of treatment for persons with salmonellosis. Antibiotic treatment is usually not indicated. Antibiotic therapy may prolong carriage and encourage the appearance of resistant strains; it does not shorten the course or ameliorate the symptoms of non-invasive GI infections. Treatment should be reserved for those with invasive disease or those at elevated risk of developing invasive disease (e.g., infants, the elderly, or those with impaired immune functions). If treatment is indicated, antibiotic resistance testing should be done.

H. Prophylaxis

None indicated.

I. Salmonellosis in Florida

The Florida Department of Health (DOH) receives approximately 5,000 to 6,000 reports of salmonellosis each year. The majority of these cases appear to be sporadic, and it is unclear what the most significant sources of infections are at this time. The most common serotypes identified in Florida are Javiana, IV 50:Z4,Z23:- (formerly Flint), Newport, Saintpaul, Enteritidis, and Typhimurium.

3. CASE DEFINITION

A. 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.

B. Laboratory criteria for diagnosis

Confirmed: isolation of *Salmonella* from a clinical specimen.

Suspect: detection of *Salmonella* from a clinical specimen using a non-culture based method.

C. Case classification

Confirmed: a case that meets the confirmed laboratory criteria for diagnosis. When available, O and H antigen serotype characterization should be reported.

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

Suspect: a case that meets the suspect laboratory criteria for diagnosis.

D. Comment

Both asymptomatic infections and infections at sites other than the gastrointestinal tract, if laboratory confirmed, are considered confirmed cases and should be reported. Illness due to *Salmonella* serovar Typhi should be reported as typhoid fever (code=00200), not as salmonellosis (code=00300).

Serogroup and serotype information can sometimes be difficult to read or interpret on laboratory reports. This information is key to understanding the epidemiology of salmonellosis in Florida and all details should be entered accurately and appropriately into Merlin. Pulse-field Gel Electrophoresis (PFGE) can be performed on *Salmonella* isolates during an outbreak investigation by the BPHL, if requested.

Typhoid fever (code=00200): all *Salmonella* serovar Typhi isolates must be sent to the Bureau of Public Health Laboratories for confirmation and additional testing.

4. LABORATORY TESTING

A. Criteria for diagnosis

The diagnosis of salmonellosis is made by isolation of *Salmonella* from a clinical specimen. The use of non-culture methods as stand-alone tests for the direct detection of *Salmonella* in stool appears to be increasing. Outbreaks can be detected by serological and genetic typing of isolates.

B. Services available at the Bureau of Public Health Laboratories (BPHL)

1. Bureau of Public Health Laboratories provides pure isolate confirmation, serogrouping of *Salmonella* species and serotyping services for outbreak detection. They can also screen outbreak-related stool specimens for *Salmonella*.
2. BPHL algorithm:
 - a. Stool cultures or referred isolates are identified biochemically as *Salmonella*.
 - b. After biochemical identification, every *Salmonella* isolate is serogrouped and undergoes PFGE.
 - c. In outbreak situations or by physician request, serotyping is also performed.
3. Culturing food items is generally non-productive in sporadic cases; however, implicated food items may be cultured by BPHL during outbreak investigations. Please consult BPHL and your Regional Environmental Epidemiologist to discuss testing food items.

C. Testing requests

1. Submitting specimens/isolates to BPHL
 - a. All submissions should be accompanied by Clinical Lab Submission Form 1847 (http://www.doh.state.fl.us/lab/addpages/BOL_Forms.html).
 - b. Electronic Laboratory Ordering (ELO) may also be used by entering request into the HMS State Laboratory System, placing bar coded label on the Cary-Blair vial, and writing the date collected on the vial.
2. Specimen collection
 - a. A small portion (acorn size) of formed stool or equal portion of liquid stool should be transferred aseptically to a modified Cary-Blair transport vial that is properly labeled (name, date of birth, date collected).

Note: for stool specimens, simply mark test 1900 on the Clinical Lab Submission Form 1847 and all enteric pathogens are automatically screened (*Salmonella*, *Shigella*, *Campylobacter*, *E. coli* O157).

- b. For isolate submission, subculture a pure single colony of the suspect *Salmonella* species on a general purpose bacterial slant (TSA slant, chocolate slant, etc.), properly label (name, date of birth, date collected), and incubate the suspect slant for 18-24 hours at 35-37°C before shipping to the laboratory to ensure viable growth.

Note: for isolates, please write “suspect *Salmonella*” in the comment section of the Clinical Lab Submission Form 1847.

3. Packaging and shipping
 - a. Specimens and isolates for *Salmonella* testing should be sent to the Jacksonville BPHL laboratory.
 - b. Place labeled vial in the proper inner/outer container (aluminum screw-cap inner container with spill absorber holds the primary vial and that is then placed in an outer cardboard screw-cap container). Please place the Clinical Lab Submission Form 1847 in a plastic Ziploc bag between the inner and outer container. Package according to International Air Transport Association (IATA) regulations, labeling the outer shipping container: *UN3373, Biological Substance Category B*.
 - c. Specimens and isolates should be sent at ambient temperature or cooler, but cool packs should not be in direct contact with vials.
 - d. http://www.doh.state.fl.us/lab/PDF_Files/Packaging_Flowchart_0422051.pdf
 - e. http://www.doh.state.fl.us/lab/PDF_Files/Packaging_Flowchart_notes_0422051.pdf
4. Contact the regional laboratory with questions:
http://www.doh.state.fl.us/lab/addpages/BOL_Contacts.html.

D. Interpretation of results

Many labs will provide the serogroup for the specimen. Additionally, BPHL may provide a serotype. These are important in determining the relatedness of specimens and may also be useful in determining cause of infection. For questions about interpretation of serogroup and serotype information, consult BPHL or the Bureau of Epidemiology.

5. CASE INVESTIGATION

All people with a positive *Salmonella* result, regardless of laboratory method, should be investigated and managed as follows.

A. Prioritize case reports for further investigation and interview based on INITIAL case report:

1. Rationale for prioritization
 - a. People with these enteric infections are most infectious to others while they are symptomatic.
 - b. Most transmission occurs early in peoples' gastrointestinal illnesses, before the nature of the illness is recognized, not from people who are convalescing and no longer have diarrhea. This highlights the importance of excluding people who have diarrhea of any cause from being present in sensitive situations.
 - c. Educating an infected person about how they likely got infected and how they can avoid getting infected again in future is not a high-priority public health activity.
 - d. The public health goal should be to intervene with people who are still symptomatic from their infection. If a person with a reported case is already

free of diarrhea by the time CHD staff get ready to contact him/her, there is little value in doing an interview or an educational intervention.

2. Prioritization groups and actions
 - a. Group 1: the report appears (before any interviewing is done) to be for a person in a sensitive situation (i.e., a daycare attendee or staff, food handler, or employee in a healthcare setting with direct patient care), to be part of an outbreak (regardless of how long it has been since event date), or to be part of a laboratory-defined cluster.

Note: CHD staff can detect some outbreaks and sensitive situations before they contact individual reported patients. For example, some case reports will include the information that the person is in a sensitive situation. The person reporting a case (e.g., physician or infection preventionist) should be asked for this information both routinely and as individual case reports are taken. CHD staff should be reviewing their reported cases of each disease (by apparent ethnicity, street address, report source, race, onset or report date, age group, etc.) in order to detect apparent clusters, which would put the reported cases that are part of that cluster in Group 1. Some people will self-report that they are part of outbreaks, and some outbreaks will be reported to or come to a CHD's attention in other ways. CHD staff may be notified by BPHL or a central office epidemiologist that isolates from particular cases are part of a cluster defined by serotype, PFGE, or other organism characteristics.

Action: locate and interview case (see 5B below). Take needed follow-up action. Enter all available information in Merlin and report the case.

- b. Group 2: cases in people whose case-report is received while they are likely to still be symptomatic and infectious (see table and notes below).

The table below shows the number of days since earliest known date (event date) when interview attempts should be made routinely. Use the column that corresponds to the earliest known date for each case. For example, if the earliest date you have for a case is onset on September 10, you would interview up to six days later, or September 16. If the earliest date you have for a case is specimen collection on September 23, you would interview up to four days later, September 27. If the earliest date you have for a case is lab report on September 18, you would only interview within one day.

Usual duration of illness (in days)	# of days from onset date	# of days from diagnosis date	# of days from specimen collection date	# of days from lab report date
6	6	1	4	1

Action: locate and interview case to determine whether the person may have put or be putting others at risk in a sensitive situation; is part of a recognized

or unrecognized outbreak; and convey a brief, focused educational intervention about how to avoid infecting other. If case turns out to be in a sensitive situation or part of an outbreak, take necessary follow-up action. **See [Section 6](#) for recommendations on controlling further spread and [Section 7](#) for recommended exclusions for symptomatic cases in sensitive situations.** Enter all available information in Merlin and report the case.

- c. Group 3: all other reported cases.

Action: mail or e-mail information to case or guardian, if address available. Interview is not necessary. Enter all available information in Merlin and report the case.

B. Investigate and interview as necessary based on case report prioritization

1. The purposes of investigation, interview, and/or counseling are to:
 - a. Determine whether the person with the reported case may have put or be putting others at risk in a sensitive situation;
 - b. Determine whether the person with the reported case may be part of a recognized or unrecognized outbreak, as a trigger to further investigation; and
 - c. Convey a highly focused, brief educational intervention to a person who is still symptomatic (or their parent or guardian) about how to avoid infecting others.
2. Contact the case to complete an interview as soon as possible after being reported to optimize recall.
 - a. If contact information for the case-patient is not received in the initial case report, contact the reporting physician or laboratory to obtain contact information.
 - b. Make at least three phone call attempts to reach the case, if still within the prioritization time frame.
 - c. Calls should be made at different times of the day, with at least one attempt in the evening.
3. Salmonellosis Case Report Form available (not required): http://www.doh.state.fl.us/Disease_ctrl/epi/topics/crforms.html. This form can be used to guide the interview and can be completed at that time.
4. Extended Data screen is available (not required) in Merlin to enter data from the Case Report Form.
5. Items to cover during interview include:
 - a. Provide brief background on disease, including possible modes of transmission, incubation period, symptoms, etc.
 - b. Activities during exposure period (12 hours-72 hours before onset):
 - i. Travel outside Florida or the United States. Determine dates of travel.
 - ii. Consumption of raw or undercooked meat, poultry, or eggs.
 - iii. Consumption of raw milk or other unpasteurized dairy products.
 - iv. Consumption of raw, potentially contaminated produce, including sprouts, leafy greens, and unpasteurized apple juice or cider.

- v. Restaurant meals. Obtain the name of the restaurant(s), date(s), and location(s) of the meal(s) and food items consumed.
 - vi. Public gathering where food was consumed (e.g., birthday parties, picnics, etc.). Obtain the date, location, and sponsor of the event and food items consumed.
 - vii. Source(s) of drinking water as well as water from streams or lakes.
 - viii. Recreational water exposure. This includes swimming, playing, or other exposure to lakes, streams, swimming pools, water parks or wading pools where water may have been swallowed.
 - ix. Contact with reptiles or amphibians (snakes, lizards, turtles, frogs, etc.) either as pets or around the home.
 - x. Contact with pets, livestock, or other animals (including farms and petting zoos).
 - xi. Contact with diapered children with diarrhea, or children in child care or other setting for preschool children.
 - xii. Occupational exposures. Evaluate the potential for exposure to human or animal excreta or soil.
 - xiii. **Note:** If the patient reports **no** gastrointestinal symptoms, the patient seems to be an instance of secondary transmission, or the infection was acquired outside of the U.S., there is no need to collect exposure information for the exposure period.
- c. Determine if others (e.g., family, friends, coworkers, customers, patients, etc.) are known or thought to be ill with similar symptoms. If so, inquire about possible common source exposures. Obtain the name, phone number or address and clinical information of the other ill people. Anyone meeting the probable case definition should be reported and investigated in the same manner as a confirmed case.
 - d. Determine if the patient or any of their symptomatic household or other close contacts are associated with **sensitive situations** (i.e., an attendee or employee of a daycare/ childcare setting, a food handler, or an employee in a healthcare setting with direct patient care). Determine the dates and times he/she worked to determine the risk of transmission to others. **See [Section 7](#) for recommended exclusions for symptomatic persons or contacts in sensitive situations.**
 - e. Provide basic instruction to patients and potentially exposed contacts about hand washing after defecation, diaper changing, and before food preparation; about the importance of proper food handling and adequate cooking of meat, poultry, and eggs; and, in general, provide pointers about minimizing fecal contamination in daily life through practicing good personal hygiene. **See [Section 6](#) for recommendations on controlling further spread.**

C. Environmental evaluation

During routine case investigations of salmonellosis, if a particular food or water exposure is suspected as the likely source of infection, then the CHD investigator should complete the Tri-Agency Foodborne Illness Survey/Complaint Form (http://www.foodandwaterdisease.com/forms/Tri-Agency_Foodborne_Illness_Form_Electronic_2-16-2011.pdf). The CHD investigator should record that complaint in their complaint log, and forward it to the appropriate agency with jurisdiction.

For each interviewed sporadic case of salmonellosis with an environmental exposure that could affect many people (e.g., a restaurant, water park, or high-risk commercially distributed food item), review complaint logs and recent salmonellosis cases in Merlin for additional cases that may be linked to the same facility or exposure source. When a community outbreak of salmonellosis is identified, most or all cases will be in the high-priority Group 1 and be a high priority for interview and investigation. A joint investigation/environmental assessment for single, sporadic cases of salmonellosis is not necessary. If additional cases are suspected or an outbreak is detected, the regional environmental epidemiologist should be notified and a joint investigation/environmental assessment will be conducted with the appropriate regulatory authority. Investigation guidelines and forms for when and how to perform a joint investigation/environmental assessment are available on the Food and Waterborne Disease Program's Investigation Tools webpage (http://www.foodandwaterdisease.com/investigation_information.htm). Technical assistance is also available from your Regional Environmental Epidemiologist, if needed (http://www.foodandwaterdisease.com/contact_docs/RegionalEpidemiologist_ContactsList.pdf).

D. Merlin data entry

Create a case in Merlin under disease code **SALMONELLOSIS – 00300**. Enter the data collected into Merlin, being sure to include all required fields on the Basic Data screen, complete the Case Symptoms screen, and attach all relevant labs. Please attach **ALL** labs received via electronic laboratory reporting (ELR) to the case and include serogroup and serotype information as available. For questions regarding serogroup or serotype results, please contact the Bureau of Epidemiology.

6. CONTROLLING FURTHER SPREAD

A. Patient/household education on prevention recommendations

1. Case reports prioritized for investigation (i.e., part of an outbreak, in a sensitive situation, or still likely to be symptomatic) should be educated on preventing transmitting infection to others.
 - a. Wash hands after using the toilet, changing diapers, handling soiled clothing or linens.
 - b. People with diarrhea should not prepare food for others.
 - c. People with diarrhea should not use recreational water venues (e.g., pools, lakes, interactive fountains, water parks) until two weeks after symptoms resolve.
2. General information on preventing disease may also be covered.
 - a. Wash hands after handling pets; pet waste; pet food; and treats made from animal products, fowl, other animals, raw meat, or raw poultry, and always before food preparation.
 - b. Do not eat raw eggs or foods containing raw eggs, or use dirty or cracked eggs.
 - c. Thoroughly cook eggs, meats, and other foods of animal origin.

- d. Avoid cross-contamination of ready-to-eat foods with raw foods of animal origin via cooking surfaces and utensils. Wash food preparation surfaces and utensils thoroughly after contact with raw meat or poultry, especially before handling and preparing food that will be served raw.
- e. Wash fruits and vegetables thoroughly before consumption. Peel when possible.
- f. Avoid unpasteurized milk and other unpasteurized products including soft cheeses, juices, and cider.
- g. Avoid drinking or swallowing untreated surface water. Untreated water should be boiled or otherwise disinfected before consumption.
- h. Protect foods from rodent and insect contamination.
- i. Discourage the use of chicks, ducklings, turtles, reptiles, and rodents as pets for small children.
- j. Avoid direct or indirect contact between reptiles and infants or immunosuppressed people.

B. Isolation of cases

People with diarrhea should stay home from daycare, school, or work until they are asymptomatic for 24 hours. **See [Section 7](#) for recommended exclusions for symptomatic cases in sensitive situations.**

C. Management of contacts

1. **Symptomatic contacts**: symptomatic contacts should be investigated and managed in the same manner as a confirmed case. Symptomatic contacts of confirmed cases meet the probable case definition and should be reported in Merlin. **See [Section 7](#) for recommended exclusions for symptomatic contacts in sensitive situations.**
2. **Asymptomatic contacts**: contacts that are currently symptom-free and have been symptom-free for two weeks may be permitted to continue in their sensitive situation at the discretion of the CHD director.

D. Laboratory testing during outbreaks

1. Laboratory testing should be performed to assist in public health decision-making and for epidemiologic studies.
2. Symptomatic contacts may be asked to submit stool specimens to establish the etiology of the outbreak.
3. Once the etiologic agent for the outbreak has been identified (4-6 specimens) further testing is usually not required for public health purposes.

E. Food or water is implicated as the source of an outbreak

Contact your Regional Environmental Epidemiologist for investigation assistance and guidance

(http://www.foodandwaterdisease.com/contact_docs/RegionalEpidemiologist_ContactsList.pdf).

7. MANAGING SENSITIVE SITUATIONS

A. Determining a sensitive situation

Sensitive situation is not defined in Chapter 64D-3, F.A.C., in relation to any particular disease. The examples provided in Chapter 64D-3, F.A.C., are all related to enteric infections, but we should not assume that all sensitive situations are equal for all diseases, especially given the markedly different age distributions, and presumed different risk of transmission by age.

Section 64-D3-3.037(3), F.A.C., specifically gives CHD directors the authority to decide what is a sensitive situation, and provides broad authority to take necessary action to control disease.

For example, a CHD director may use his/her discretion to designate an elementary school, or the lower grades of an elementary school, as a sensitive situation, but he/she is not required to do so. This decision should be based on evidence of transmission within a particular setting.

B. Case or symptomatic contact attends or works at a day care facility

1. Exclusion, per Rule 64D-3.040(4), F.A.C.:
 - a. Before returning to day care facility, patient must submit two negative specimens collected at least 24 hours apart. If the patient was on antibiotic therapy, the first specimen should be collected at least 48 hours after cessation of antibiotic therapy.
 - b. People infected with *Salmonella* that are asymptomatic may return to day care at the discretion of the CHD director or administrator or their designee, provided adequate sanitary facilities and hygienic practices exist.
2. Instruct the operator and other staff in proper methods for food handling and hand washing, especially after changing diapers.
3. Interview the operator and check attendance records to identify other persons with symptoms that occurred during the previous month.
4. Instruct the operator to notify the CHD immediately if new infections with diarrhea occur. Call or visit once each week for two weeks after onset of the last case to verify that surveillance and appropriate hygienic measures are being implemented. Manage newly symptomatic children as outlined above.
5. Outbreak: defined as two or more cases of gastrointestinal illness with similar symptoms occurring within 72 hours among children or staff who do not live in the same household; if the etiologic agent is known, an outbreak is defined as two or more cases occurring within the incubation period for the disease.
 - a. If an outbreak is identified, do a sanitary inspection and implement control measures as outlined in the Guidelines for Control of Outbreaks of Enteric Disease in Child Care Settings (http://www.doh.state.fl.us/Disease_ctrl/epi/surv/enteric.pdf), per Rule 64D-3.040(5), F.A.C.

- b. Phase 1: salmonellosis outbreak suspected or confirmed; Phase 1 continues for 2 incubation periods after control measures have been put into place.
 - i. Exclusion: all persons with diarrhea, vomiting, or other gastrointestinal symptoms should be excluded until asymptomatic for 24 hours.
 - ii. Children who develop symptoms while at the day care should be isolated from other children until the parent or guardian removes the child from the facility.
 - iii. Personal control measures: require all persons (including, but not limited to: children, parents, siblings, staff, visitors, and service personnel) to wash hands upon entering the facility, after using the bathroom, after assisting with toileting or diaper changes, after playing outside, and before and after handling food or eating. Adults will supervise children's hand washing, infants' hands will be washed after diaper changes and staff involved in food preparation should not change diapers.
 - iv. Environmental control measures
 - Ensure that hand toys are limited to single child use between cleaning and sanitizing
 - Ensure that food is served in individual portions
 - Prohibit use of swimming pools
 - Prohibit playing with dough or clay
 - Regularly clean tables and other contact surfaces during the day using an appropriate germicide
 - Clean and sanitize potty chairs after each use
 - Clean frequently during the day and sanitize at least once per day
- c. Phase 2: if salmonellosis cases continue to occur more than two days (two median incubation periods) after Phase 1 control measures were put in place, contact the Bureau of Epidemiology for guidance.

C. Case or symptomatic contact is a food handler

1. Exclusion, per Rule 64D-3.040(4), F.A.C.: before returning to food handling, patient must submit two negative specimens collected at least 24 hours apart. If the patient was on antibiotic therapy, the first specimen should be collected at least 48 hours after cessation of antibiotic therapy.
2. Contact your Regional Environmental Epidemiologist (http://www.doh.state.fl.us/environment/medicine/foodsurveillance/about_us.htm)

D. Case or symptomatic contact works at a healthcare or residential care facility

Exclusion, per Rule 64D-3.040(4), F.A.C.: before returning to a healthcare or residential care facility, patient must submit two negative specimens collected at least 24 hours apart. If the patient was on antibiotic therapy, the first specimen should be collected at least 48 hours after cessation of antibiotic therapy.

8. IMPORTANT LINKS

A. Salmonellosis Case Report Form:

http://www.doh.state.fl.us/Disease_ctrl/epi/topics/crforms.html

- B. Tri-Agency Foodborne Illness Survey/Complaint Form
(http://www.foodandwaterdisease.com/forms/Tri-Agency_Foodborne_Illness_Form_Electronic_2-16-2011.pdf)
- C. Food and Waterborne Disease Program – Investigation Tools
http://www.foodandwaterdisease.com/investigation_information.htm
- D. Food and Waterborne Disease Program – Contact List
http://www.foodandwaterdisease.com/contact_docs/RegionalEpidemiologist_ContactsList.pdf
- E. Guidelines for Control of Outbreaks of Enteric Disease in Child Care Settings:
http://www.doh.state.fl.us/Disease_ctrl/epi/surv/enteric.pdf
- F. APHA Media Advocacy Manual:
http://www.apha.org/NR/rdonlyres/A5A9C4ED-1C0C-4D0C-A56C-C33DEC7F5A49/0/Media_Advocacy_Manual.pdf

9. REFERENCES

- A. Heymann, D.L. (Ed.). (2008). *Control of Communicable Diseases manual* (19th ed.). Washington: American Public Health Association.
- B. American Academy of Pediatrics. (2012). *Red Book: 2012 Report of the Committee on Infectious Diseases* (29th ed.). Grove Village, IL: American Academy of Pediatrics.
- C. Aronson, S.S. and Shope, T.R. (Eds.). (2009). *Managing Infectious Diseases in Child Care and Schools: A Quick Reference Guide* (2nd ed.). Grove Village, IL: American Academy of Pediatrics.