

SHIGELLOSIS OUTBREAK INVESTIGATION & CONTROL
IN CHILD CARE CENTERS / PRE-SCHOOLS

Colorado Department of Public Health & Environment
Communicable Disease Epidemiology Program

For information on *Shigella* disease control and epidemiology, including reporting requirements and routine case investigation, please refer to the CPDHE Communicable Disease Manual, available at: http://www.cdphe.state.co.us/dc/Epidemiology/dc_manual.html

When a case of shigellosis occurs in a child care center attendee or worker, **immediate involvement of public health authorities is critical**. *Shigella* spreads very quickly through child care centers, but can be controlled if appropriate action is taken. When an outbreak occurs, the first case to be diagnosed may be a child, or an adult contact of a child.

For a single case of shigellosis associated with a child care center:

- Children with shigellosis should not be permitted to re-enter the child care center until diarrhea has resolved **and** *either* the child has been treated with an effective antibiotic for 3 days *or* there are 2 consecutive negative stool cultures.
- It is important to obtain the antibiotic susceptibility pattern for the isolate from the physician or the clinical laboratory that performed the test in order to determine if a child has been treated with an effective antibiotic.
- Parents of cases should be counseled not to take their children to another child care center during this period of exclusion.
- Public health or environmental health staff should visit the facility, review hygienic procedures, and reinforce the importance of meticulous handwashing with childcare center staff.
- Look for symptoms consistent with *Shigella* infection (diarrhea and fever) in other children or staff during the 3 weeks previous to the report of the index case.
- Child care center staff with *Shigella* infection can return to work after diarrhea has resolved, but they must not prepare food or feed children until they have two negative stool cultures collected at least 24 hours apart (and collected at least 48 hours after cessation of antibiotics, if antibiotics are given). In this situation, it is important for Environmental Health staff to work closely with the center to ensure that affected staff do not handle food until cleared by public health.
- If the index case is the only person in the classroom or facility who has been ill, that person may return as outlined above and no further action is indicated for other children or staff in that classroom or facility.

If there is more than one laboratory-confirmed case, OR one lab-confirmed case plus others with recent *Shigella*-like symptoms:

- Have the facility send a letter to parents (*sample letter* attached). Include information on shigellosis, such as symptoms, mode of transmission, reporting illness, who needs to submit stool specimens for testing, effective antibiotics, and the importance of handwashing, cleaning and disinfection.

- Children or staff who are having symptoms consistent with shigellosis (diarrhea) should be excluded from the facility, referred to their health care provider, and instructed to submit a stool specimen or rectal swab for *Shigella* testing.
- In a child care setting, use of an effective antibiotic that is safe for use in children shortens the duration of diarrhea, and eliminates shedding of the bacteria.
- Obtain stool specimens or rectal swabs from others in the same classroom as the case-patient who have recently exhibited symptoms, *even if* they have no longer have symptoms (people may shed the bacteria for up to 4 weeks after symptoms have resolved, and it takes only a few organisms to spread infection). As these persons are not acutely ill, and the testing is exclusively for public health purposes, these specimens should be sent to the state laboratory for culture.
- In a classroom that has had more than 2 symptomatic children, culture all children in that classroom (*sample specimen collection instructions* attached). Culturing children in other classrooms may be indicated, depending on the amount of mixing that occurs between children in different classrooms, the ages of children involved and whether children who have been ill wear diapers.
- Children and staff should be excluded from the child care center until diarrhea has resolved. Follow the chart below for further cohorting/exclusion details:

Disease Control Algorithm for Child Care Facilities

Stool culture results & Symptoms	Safe & effective Antibiotic Rx Available	Cohort or Exclude	Return to Regular Class
1) Stool (+) / <u>Diarrhea</u>	Yes	Exclude	After 3 days on antibiotics & <u>no diarrhea</u> (complete antibiotics as prescribed)*
	No	Exclude , then cohort when no diarrhea	After 2 consecutive (-) stool cultures
2) Stool (+) / <u>No diarrhea</u>	Yes	Cohort	After 3 days on antibiotics (complete antibiotics as prescribed)*
	No	Cohort	After 2 consecutive (-) stool cultures
3) Diarrhea only (stool [-])	If indicated for the type of infection present	Exclude	Until no diarrhea

* Stool cultures NOT needed for return to regular class if course of appropriate antibiotics has been taken for at least 3 days.

- Close contacts outside the child care facility: Since spread can occur to other close contacts outside of the child care facility, determine whether family members or close friends of lab-confirmed or probable cases are symptomatic (as outlined in the [CD manual chapter on shigellosis](#)). Determine whether symptomatic close contacts are employed in high-risk occupations (foodhandling, health care, child care). Refer symptomatic individuals who have not previously been tested (especially if they are high-risk workers) to their health care providers for stool cultures, or obtain a stool sample for testing.
- Cohorting: when cohorting children in a child care facility who are stool culture positive and under treatment, locate in a separate room if available, and assign separate staff to the cohort room. If space constraints prevent using a separate room, divide the room to accommodate a cohort. During small outbreaks, a cohort room may need only to be maintained for a week before all children can return to their regular classroom. In larger outbreaks, it may be longer because cases may continue to be identified and treated over a period of several weeks or more.
- If no effective antibiotic appropriate for use in children can be used, then a cohort should be maintained, and untreated children should be tested until they have 2 consecutive negative specimens at least 24 hours apart, before being returned to their regular classrooms.
- Hand washing: teach the importance of frequent and effective hand washing and direct supervision of the hand washing of children under 5 years old.
- Perform more frequent cleaning and disinfection of toys, bathrooms, diapering areas, and food preparation areas during this time. Suspend the use of “play” dough and water tables.
- Persons preparing food in the child care facility should not be changing diapers or providing care to symptomatic or stool positive children. Family style meals should be suspended. A glove order is recommended for all those who handle food until the outbreak is over.
- Exclusion and charges: in instances where children are excluded because of a child care outbreak, eliminating child care facility charges for days when a child is excluded facilitates cooperation of the parents, and reduces the chance that parents may try to place their child in an alternate child care facility.
- Transfers and new enrollment: transferring stool positive children to other facilities only increases the risk of spreading the infection further. Prevent transfers to other centers. Prohibit new enrollment until the infection has been eliminated from the child care facility. Keep the child care facility open.
- Swimming or wading pools: exclude stool positive children from swimming or wading pools until they are cleared to return to their regular class (see table). Also, increase the frequency of pool chemical testing (chlorine or bromine levels) until the outbreak has stopped.
- Health department staff need to make regular visits to the child care facility to verify that procedures are being followed, answer child care facility staff or parents’ questions, perform continued case finding, and verify that the outbreak has stopped.
- Health department staff should notify the Department of Human Services representative for their county about the outbreak.

- Authorization by the CDPHE Communicable Disease Program is required before submitting bulk stool or rectal swabs to the CDPHE Microbiology Laboratory. To avoid laboratory charges, please call 303-692-2700 before submitting specimens to the state laboratory.
- Refer to the [Food and Stool Specimen Collection Guidelines](#), available on the CD manual website, for details on specimen collection and shipping.
- It is recommended that people who are experiencing symptoms submit stool specimens through their health care provider rather than to the state laboratory for several reasons:
 - The patient will receive appropriate medical care for the illness, including antimicrobial therapy, if appropriate.
 - Results will be known more quickly if stool is tested by a commercial laboratory than if tested at the state laboratory.
 - Commercial labs generally perform antimicrobial susceptibility testing, whereas, the state lab does not routinely perform such testing.

REFERENCES

Hoffman RE, Shillam PJ. The use of hygiene, cohorting, and antimicrobial therapy to control an outbreak of shigellosis. *Am J Diseases Children*. 1990;144:219-221.

Nelson JD, Kusmiesz, H, Jackson LH, Woodman E. Trimethoprim-sulfamethoxazole therapy for shigellosis. *JAMA*. 1976;235:1239-1243.

Date:

A Letter To Parents Of Children At:

Dear Parents,

It has recently come to our attention that several children in the child care group have had a diagnosis of **shigellosis**, a self-limiting intestinal infection caused by bacteria. The affected children are being treated before returning to their classrooms in the center. Because several other children in the center have had symptoms of diarrhea in the past 2-3 weeks, we are requesting that parents or day care providers **obtain a stool specimen** on some of other children in the center. Specimen swabs and lab testing are provided at no charge by the health department.

Infected children can easily spread the bacteria to playmates and their own families. Spread takes place when hands, objects or food become contaminated with very small amounts of stool or feces from those who are infected, and the bacteria are then taken in by mouth. **Careful handwashing** following diaper changing, and following toilet use is **very important** to prevent spread. Infected persons should not prepare food for others until they are no longer contagious.

Symptoms may include diarrhea (sometimes with blood or mucous), fever, vomiting and cramps, and last about 3 to 7 days, but can last from 1-30 days. If your child or someone else in the family develops these symptoms in the next two weeks, be sure to report the illness to the center director.

If your child is culture-positive for **Shigella**, he or she must be treated with an effective antibiotic that you can obtain through your physician. This will assure that the *Shigella* organism is not passed between more children in the classroom or care group. (Bactrim or Septra) is an effective antibiotic, (ampicillin is **not** effective against this organism). An alternative antibiotic that may be prescribed is *****

If you have questions, please call xxxxxxx County Health Department (name of contact person) at ###- ###-#### .

Thank you for your assistance in preventing spread of this illness.

INSTRUCTIONS FOR OBTAINING STOOL SPECIMENS FOR BACTERIAL CULTURE

(for parents/caregivers)

- 1) Write child's name, age, and date of specimen collection on the collection tube.
- 2) Wash hands.
- 3) Collect stool specimen as follows:
 - a. Cover tip of swab with stool from toilet paper, diaper, or soiled underwear.
OR
 - b. Gently insert swab (no more than 1 inch) into rectum; gently turn swab.

*** Be sure that swab has visible brown stool/feces on it ***
- 4) Break swab stick and place swab in collection tube. Replace the lid.
- 5) Wash hands again.
- 6) Return specimen to the child care center director.