

Control Measures for the Child Care Setting During an Outbreak of both Cryptosporidiosis and Shigellosis

Cryptosporidiosis (also called “Crypto”) is a diarrheal illness. It is caused by a single-celled parasite, *Cryptosporidium* (also called “Crypto”). This disease is a common cause of diarrhea in children, especially in diapered children in day care centers, nurseries and preschools. The most common symptom of this infection is watery diarrhea. This might be accompanied by stomach ache, nausea and vomiting, fever, and a general sick feeling. Healthy people with Crypto almost always get better without any treatment. However, treatment is now available by prescription, which can shorten the time of illness. An unusual feature of Crypto is that some people seem to get better only to have the diarrhea come back in a few days. Symptoms can come and go for up to 30 days, but usually subside in 1 to 2 weeks without treatment. However, Crypto can cause severe illness in persons with weak immune systems, such as those with HIV infection or those taking drugs that suppress the immune system.

Shigellosis is a diarrheal illness caused by *Shigella* bacteria. Infection with *Shigella* commonly causes diarrhea in young children and their care-givers (those who change diapers). Symptoms of the illness include diarrhea, fever, and stomach ache that lasts for about 4 to 7 days. Sometimes the diarrhea can contain blood. Shigellosis usually goes away by itself within one week, but antibiotics can shorten the illness a little.

Because Crypto and *Shigella* are in feces, anything that gets contaminated by feces can potentially spread the germs. As a result, the germs can be spread directly from person to person, through contact with contaminated objects (e.g., toys), swallowing contaminated food or water, or using contaminated water for swimming. Crypto and *Shigella* outbreaks in child care settings are most common during late summer/early fall (August/September) but might occur at any time. The spread of these illnesses is highest among young children who are not toilet trained and their caregivers.

Crypto is resistant to chlorine disinfection so it is tougher to kill than most germs. The usual disinfectants, including most commonly used bleach solutions, have little effect on Crypto. An application of either hydrogen peroxide or ammonia seems to work best. Hydrogen peroxide is probably the best choice in the child care setting, because ammonia has a strong odor and produces hazardous gas when mixed with bleach or other chlorinated solutions. However, it is not clear that hydrogen peroxide works well against *Shigella*. Therefore, in a mixed outbreak, you should continue to first clean up the area to remove the bulk of organic material, follow with standard disinfectants, and then apply the hydrogen peroxide.

If an outbreak (two or more infections) of Crypto or *Shigella* occurs in the child care setting:

- Call your state or local health department and let them know about increased levels of diarrheal illness or of any infections with Crypto or *Shigella*.
- Educate staff and parents
 - Inform all staff about the ongoing outbreak, the symptoms of Crypto and *Shigella*, how they are spread, and control measures to be followed.
 - Inform parents about the ongoing outbreak, the symptoms of Crypto and *Shigella*, how they are spread, outbreak control policies, and needed changes in hygiene and cleanliness.
 - Notify parents of children who have been in direct contact with a child or an adult caregiver with diarrhea.
 - Parents should contact the child's healthcare provider if their child develops diarrhea.

- Inform parents of children and staff about Crypto's potential to cause severe disease in immunocompromised persons. Immunocompromised persons should consult their healthcare provider for further guidance.
- Exclude any child with diarrhea from the child care setting until the diarrhea has stopped.
 - Children who are infected with Crypto but who do not have diarrhea may be allowed to return but should be excluded if their diarrhea returns.
 - In some states, children with *Shigella* are required to have one or more tests for *Shigella* after the diarrhea finishes. These tests must be negative before the child can return to the childcare setting.
 - If your health department okays it, you may consider moving adults with diarrhea to jobs that minimize opportunities for spreading disease (e.g., administrative work instead of food preparation or food serving).
- Stop all water play or swimming activities (e.g., water tables, inflatable or rigid temporary swimming pools, public pool visits). This water can become contaminated and spread the infections.
- Practice good hygiene.

Note: The measures outlined should be routine but are especially important during outbreaks.

- Enforce frequent hand washing and good hand washing technique for all children and adults.

Note: Crypto is not killed by alcohol gels and hand sanitizers so these materials are of little use in controlling an outbreak. They are effective against *Shigella* and other causes of diarrheal and respiratory disease so can be used in conjunction with frequent hand washing with soap and water.

- Good hand washing means
 - Wet your hands with clean running water and apply soap.
 - Rub hands together to a lather and scrub all surfaces.
 - Continue rubbing hands for 20 seconds (imagine singing "Happy Birthday" twice)
 - Rinse hands well with water.
 - Dry hands with paper towels or an air dryer. If possible, use a paper towel to turn off the faucet. Do not use reusable towels.
 - For children:
 - Observe hand washing or assist when needed.
 - Instill good hand hygiene practices in all children by making hand washing routine. Children's hands should always be washed:
 - Upon arrival at the child care setting.
 - Just before and after they eat.
 - After using the toilet or after having a diaper changed.
 - After coughing, sneezing, or wiping their noses.
 - Before using water tables (stop use during outbreaks).
 - After playing on the playground.
 - After handling pets, pet cages, or other pet objects.
 - Whenever you see that hands are dirty.
 - Before going home.
 - For adults:

Note: Where staffing permits, people who change diapers should not prepare or serve food

- Care givers can both protect against germs and model good hand hygiene for the children by washing their hands when:
 - They get to work
 - They are going to prepare food, fix baby bottles, or feed children.
 - They use the toilet, assist a child in using the toilet, or change a child's diapers.
 - They come in contact with body fluids, which includes items such as wet or soiled diapers, runny noses, saliva, or vomit.
 - They handle pets, pet cages, or other pet objects.
 - Their hands have dirt on them after cleaning up a child, a room, bathroom items, toys, or other objects.
 - They remove gloves used for any reason.
 - They give or apply medicine or ointment to a child or adult, including themselves.
 - They go home.
- Improve diaper changing practice.
 - Separate diaper changing areas from children's play and food preparation areas.
 - Use disposable gloves and change them after each diaper change.
 - Use disposable paper over the diaper changing surfaces and change it after each diaper change.
 - Ensure children wear clothing over their diapers to reduce the opportunity for leakage.
 - Dispose of soiled diapers and cleaning materials in a secure, covered trash bin.
 - Wash hands after removing gloves: both yours and the child's.
 - Staff involved in diapering should not prepare or serve food.
- Disinfect surfaces and objects
 - Always clean up soiled area first to remove as much of organic material as possible before disinfecting
 - No disinfectant is guaranteed to be completely effective against Crypto. However, hydrogen peroxide is usually effective.
 - Instead of a bleach solution, use a 3% (99% inactivation) or, if available, 6% (99.9% inactivation) concentration of hydrogen peroxide to soak contaminated surfaces for 20 minutes.
 - Ammonia can also be used (5% solution for 18 hours) but it has a strong odor and, if accidentally mixed with bleach or other chlorine-containing solutions, produces hazardous chlorine gas.
 - Disinfect bathrooms, diaper areas, and food preparation surfaces daily.
 - Disinfect toys, tabletops, and high chairs more frequently than usual (at least twice daily).
 - Dishwasher-safe toys can be disinfected in a commercial dishwasher that has a dry cycle or a final rinse that exceeds 113°F for 20 minutes or 122°F for 5 minutes or 162°F for 1 minute.
 - Cloth toys may be washed and heat-dried for 30 minutes on the highest clothes dryer heat setting.
 - These are not routine measures, but may be necessary if an outbreak of Crypto occurs; usually 2 or more cases in the same child care group.