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Division of Disease Control

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Health Advisory

***Cryptosporidium* Cases Associated with Recreational Water Exposure August 21, 2007**

Several cases of *Cryptosporidium* infection have been linked to swimming pools in the Philadelphia metropolitan area. This Health Advisory is intended to provide you with information to identify potential cases of cryptosporidiosis and to promote disease control measures.

What is cryptosporidiosis?

Cryptosporidiosis is a parasitic infection caused by *Cryptosporidium* species. Frequent, nonbloody, watery diarrhea occurs most commonly, often associated with abdominal cramps, fatigue, vomiting, and anorexia. Fever and vomiting may be more common among children. Asymptomatic infections occur. In immunocompetent persons, infection is self-limiting, usually lasting 1-20 days. Immunosuppressed persons may have severe diarrhea that results in malnutrition, dehydration, and death, especially persons with HIV infection.

How is cryptosporidiosis transmitted?

Cryptosporidium oocysts are found in a variety of hosts, including humans, livestock, birds and reptiles; the organism is shed in feces. Person-to-person transmission occurs, particularly in households and in childcare centers. Contact with contaminated surfaces such as bathroom fixtures or changing tables also transmits infection. Waterborne outbreaks have been associated with contamination of municipal water supplies and exposure to contaminated swimming pools because the organism is resistant to chlorine disinfection. Transmission can also occur from direct exposure to farm animals. The median incubation period is 7 days, with a range of 2 to 14 days. Oocysts can be shed in the stool for up to two weeks after symptoms resolve.

How is the diagnosis made?

Routine laboratory examination of stool for ova and parasites will not detect *Cryptosporidium* species. Stool specimens should be submitted to the clinical laboratory with a specific request for *Cryptosporidium* detection. Most laboratories perform an enzyme immunoassay (EIA) test to detect antigen in stool. *Cryptosporidium* may also be detected with a monoclonal antibody-based fluorescein-conjugated stain for oocysts in stool, or visualized with a modified Kinyoun acid-fast stain. Cryptosporidiosis is a notifiable condition and all confirmed and suspected cases must be reported to the Department of Public Health.

How is the infection treated?

The majority of healthy children and adults recover from cryptosporidiosis without treatment. A 3-day course of nitazoxanide oral suspension has been approved by FDA for the treatment of children ≥ 12 months and adults with cryptosporidiosis. Paromomycin, alone or with azithromycin, is minimally effective. Treatment is usually considered for individuals with prolonged symptoms, and for individuals who are immunocompromised. Antiretroviral therapy has beneficial effects on cryptosporidiosis in HIV-infected patients.

What are the control measures?

People with diarrhea should not use public recreational water (e.g., swimming pools, lakes, ponds, swim parks) in general, and persons with the diagnosis of cryptosporidiosis should not use recreational waters for 2 weeks after symptoms resolve. Hyperchlorination protocols can be used to disinfect swimming pools; pool operators must ensure that ill or recovering individuals do not re-infect pool water after hyperchlorination has been completed.

Infected children should be excluded from childcare and pre-school settings until symptoms have resolved. Childcare centers should be vigilant to observe careful hygiene practices around diaper-changing, toilet use and food handling. Infected individuals who are food handlers or healthcare workers should be excluded from work until symptoms have resolved; they may return to work once asymptomatic unless they have questionable handwashing habits and personal hygienic practices, or there is ongoing evidence of disease transmission in the workplace.

General recommendations for recreational water use:

Advise patients to observe these healthy swimming behaviors:

1. Don't swim when you have diarrhea or for two weeks after diarrhea has ceased.
2. Don't swallow the pool water.
3. Practice hygiene by taking a shower before swimming and washing your hands after using the toilet or after changing diapers.
4. Take your child on bathroom breaks or check diapers often.
5. Change diapers in a bathroom and not at poolside.
6. Wash your child thoroughly (especially the rear end) with soap and water before swimming.
7. Individuals who are immunocompromised should take special care not to ingest pool water while swimming, and to practice careful hygiene after touching surfaces that might be contaminated.

If you have questions about the information in this advisory, please contact the Division of Disease Control at 215-685-6741. After-hours, please call 215-686-1776 and ask to be connected to the person on-call for the Division of Disease Control