

***Cryptosporidium hominis* Infections Associated with a Community Pool**

July-August

Redwood County

On August 16, the Minnesota Department of Health (MDH) foodborne and waterborne illness complaint hotline received a call from an employee at a community pool in Morgan, MN. The complainant reported that she had tested positive for *Cryptosporidium* and knew of other staff and patrons who were also ill. Sanitarians from Southwest Health and Human Services (SWHHS) were contacted by the pool's management on August 15 regarding the reported illnesses. A joint investigation was initiated on August 16.

Contact information for family and individual season pass holders and swim lesson participants was provided to MDH by pool management. MDH staff interviewed pool patrons about their illness and exposure histories. Cases of cryptosporidiosis that were identified through routine surveillance were interviewed to determine if they had exposure to the pool.

A SWHHS sanitarian visited the pool on August 16 to conduct a field assessment of the facility and to gather staff contact information. SWHHS sanitarians interviewed staff regarding recent illness and job duties.

A case was defined as a pool user who developed either a laboratory-confirmed *Cryptosporidium* infection or diarrhea (≥ 3 loose stools in a 24-hour period) or vomiting lasting 3 or more days, with illness onset 2 to 14 days following pool exposure.

MDH staff interviewed 27 patrons, and 9 (33%) met the case definition. An additional five patrons reported illness that did not meet the case definition and were excluded from further analyses. SWHHS sanitarians interviewed 11 pool staff, and 7 (36%) met the case definition. In total, 16 cases were identified.

All cases reported diarrhea, 14 (93%) of 15 reported abdominal cramps, 9 (56%) reported vomiting, 7 (44%) reported fever, and 1 (6%) reported bloody diarrhea. Reported onset dates ranged from July 24 to August 15. Incubation periods could not be calculated because all ill individuals reported multiple swim dates. The median duration of illness was 7.5 days (range, 4 to 13 days) for the 12 cases who had recovered at the time of interview. No cases were hospitalized. Four cases (three patrons and one staff member) had *Cryptosporidium* identified in a stool sample. All samples were received at the MDH Public Health Laboratory, where *Cryptosporidium hominis* subtype HGP11 was identified.

No specific day or pool was associated with illness.

On August 15, the pool voluntarily closed to be hyperchlorinated at 20 parts per million for 12.75 hours, the necessary chlorine level and time needed to inactivate *Cryptosporidium*.

Upon reviewing the facility's pool logs, the main pool was found to be consistently open when chlorine levels were recorded as less than 1.0 ppm, the state regulatory minimum limit. During a routine inspection on July 28, the main pool was closed when a SWHHS sanitarian found the chlorine level to be 0.2 ppm. During a re-inspection on August 11, the chlorine level in the main pool was 2.0 ppm; however, the pool log indicated there were still times when the pool was open when recorded chlorine levels were below 1.0 ppm.

Staff that met the case definition were restricted from working while ill and for 2 weeks following the resolution of symptoms. Due to the large number of staff who were excluded from work, the facility decided to remain closed and did not reopen for the rest of the 2017 season.

This was an outbreak of cryptosporidiosis associated with swimming at a community pool. Although the original source of contamination was not identified, an infected pool user most likely introduced the parasite into the pool. Once the outbreak started, both staff and patrons reported swimming while ill, which reintroduced the parasite into the water and likely prolonged the outbreak. Additionally, while *Cryptosporidium* can survive for 10 days in properly maintained pools that have a chlorine level of 1.0 ppm and a pH of 7.6, the low levels of chlorine in the main pool allowed *Cryptosporidium* to survive for a longer period, prolonging the time of spread of the parasite.