



# Southwest District Health

Environmental Health Services  
13307 Miami Lane

P. O. Box 850 •Caldwell, Idaho 83606• 208.455.5400



## Fecal Accident Response Recommendations for Swimming Pools

Fecal incidents are an inconvenience to both the recreational swimmer and pool operator. **Recreational Water Illnesses (RWIs)** are spread by swallowing pool water that has been contaminated with fecal matter. Those managing pools should carefully explain the importance of closing the pool in response to a fecal accident, for their patrons own health and safety. Not all fecal incidents need to be treated the same. The following material is to help explain the correct procedures to insure public safety.

### Formed Stool in Pool

Formed stools often act as a container for germs. Removing the feces without breaking it apart will decrease the likelihood of greater pool contamination. In 1999, pool staff volunteers across the country collected almost 300 samples from fecal incidents that occurred at water parks and pools. The CDC tested the water samples for both *Cryptosporidium* (Crypto) and *Giardia*. None of the sampled fecal incidents tested positive for Crypto, but *Giardia* was found in 4.4% of the samples. The results show that formed fecal incidents can pose a small Crypto threat, but should be treated as a risk for spreading other germs. To reduce ill employees and patrons:

1. Direct all patrons out of the pool. If there are multiple pools that use the same filter, all pools must be closed to swimmers. Do not allow patrons in pools until all decontamination actions are finished.
2. Using a net or scoop, remove as much of the fecal contamination as possible. Clean and disinfect the net or scoop (submerge the net or scoop in the pool during the disinfection process). **VACUUMING STOOL FROM THE POOL IS NOT RECOMMENDED.** This will allow stool to be forced through the pool's filtering system.
3. Raise the chlorine level to at least 2ppm (if free chlorine is less than 2 ppm) and ensure the pH activity is between 7.2 – 7.5.
4. Maintain the chlorine concentration at 2.0 ppm, pH 7.2-7.5, for at least 25 minutes before allowing patrons back into the pool. Keep the filtration system running during the entire process

Giardia Inactivation for Formed Fecal Count	
Chlorine Levels (ppm)	Disinfection Time in Minutes
1.0	45
2.0	25
3.0	19
Information from the Center of Disease Control (CDC)	

The destruction of the *Giardia* parasite is used as a base; this is the toughest bacteria to destroy that may be found in formed stools



## Diarrhea in the Pool

Those that swim with diarrhea like symptoms can put others at greater risk for recreational water illnesses. Diarrhea accidents are much more likely to contain harmful bacteria than formed stool. It is extremely important that all pool managers and lifeguards stress to all patrons that swimming when ill with diarrhea is an unhealthy pool behavior.

1. Direct all patrons out of the pool. If there are multiple pools that use the same filter, all pools must be closed to swimmers. Do not allow patrons in pools until all decontamination actions are finished.
2. Using a net or scoop, remove as much of the fecal contamination as possible. Clean and disinfect the net or scoop (submerge the net or scoop in the pool during the disinfection process). **VACUUMING STOOL FROM THE POOL IS NOT RECOMMENDED.** This will allow stool to be forced through the pool's filtering system.
3. Raise the free available chlorine concentration to 20 ppm (shocking the pool), and maintain the pH at 7.2-7.5. This chlorine and pH level will be sufficient to inactivate any risk of **Cryptosporidium**. The pH and chlorine concentration must be maintained for a minimum of eight hours.
4. The filtration system must be kept running during the entire chlorination process.
5. Backwash the filter thoroughly after the eight hours. Make certain the effluent is discharged directly to the sewer line. When/if appropriate, replace filter media.
6. Swimmers should be allowed back into the pool after the eight hour disinfectant period and when the chlorine level has been returned to the normal operating range (1.0-5.0 ppm).

<b>Cryptosporidium Inactivation Time for Diarrheal Accident</b>	
<b>Chlorine Levels (ppm)</b>	<b>Disinfection Time in Minutes</b>
<b>1.0</b>	<b>10.6 days</b>
<b>10</b>	<b>25.5 hours</b>
<b>20</b>	<b>12.75 hours</b>
<b>Information from the Center of Disease Control (CDC)</b>	

The **CT inactivation value** is used to determine the amount of free chlorine in the water and the time in minutes at a specific pH and water temperature needed to ensure the destruction of Giardia or Cryptosporidium. The CT inactivation value is the concentration (C) of free chlorine in ppm multiplied by time (T) in minutes (CT value = C x T). The CT value is always constant, Giardia is 45 and Cryptosporidium is 15,300 (both at about pH of 7.5, 77° F) **15,300 = C x T**  
**Crypto:** 15,300 ÷ 20 ppm = 765 minutes or 12.75 hours or 15,300 ÷ 15ppm = 1020 minutes or 17 hours  
**•• Crypto CT values are based on inactivation of 99.9% of oocysts. Laboratory studies indicate that this level of Crypto inactivation cannot be reached in the presence of 50 ppm chlorine stabilizer. ••**

**\*There are no recommendations for the disinfection of the vacuum system. If a vacuum is used, discharge the product through the sewer line and not through the filtration system.**  
**\* Many pool testing kits cannot read to 20 ppm. If possible litmus test strips used at local food establishment may be used to check chlorine concentrations > than 5 ppm**

**\*\* Information Compiled from the Center of Disease Control (CDC)**

