

# Healthy People. Healthy Community.

Public Health Blog

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## Healthy Water, Healthy Swimming

By Trudy Merritt, Outreach Coordinator

What could be more inviting than crystal clear water on a hot summer's day, a sparkling invitation to "come on in, the water's fine!"? Is the water actually fine, and how do we know? Water is not only inviting to people, but also to a host of microorganisms and disease-causing germs. West Central District Health Department wants to empower you with information so that a water-borne illness doesn't dampen your summer fun! Many folks are familiar with stale, stagnate water and its characteristic rancid smell. Dark and murky, this type of water would cause most people to steer clear. The challenge, particularly when it comes to public health, is identifying water that may not be healthy for swimming even though it looks clear and inviting. Water that people can enter, play in, swim in and enjoy is known as "recreational water." Water in swimming pools, hot tubs, water playgrounds, lakes, rivers and even the ocean are all "recreational water." Any of these bodies of water can be contaminated by any number of pathogens that can make you sick.

Even when swimming pool operators do their best, they need your help to keep the water safe for everyone. Remember, you share the pool water with everyone and in large facilities, that could be hundreds of people every day. The most important safety tip you and every member of your family should know is to NEVER drink any recreational water. People are naturally more averse to drinking water from a natural body of water, but swimming pool water looks just like the water in our glass.

Swimmers, particularly children, are more prone to swallow pool water than they might water that is less clear. Children will need to be reminded regularly about this very important water safety tip.

The biggest concern when it comes to RWI's is water contaminated with diarrhea. If someone with diarrhea contaminates the water, swallowing that water can make you sick. One person can contaminate an entire pool. Because it is not always apparent when someone has an accident in the pool, the best way to stay safe is to avoid getting water in your mouth and make that a practice during every swim, every time. Parents should not allow children to swim if they have diarrhea. Parents should also not change diapers on the pool deck, using designated changing areas only. Diaper changing on the deck can inadvertently contaminate the deck. If someone walks through the contaminated area, they can then spread those germs to the pool water. Children not reliably toilet trained must wear an appropriately sized swim diaper. This is a requirement in public swimming pools in the State of Nebraska. All swimmers, but especially children, should visit the restroom before entering the pool, even if they don't feel any need. Parents should regularly check-in with their children and remind them to use the restroom every hour or so.

Before swimming and after every trip to the restroom, good hygiene goes a long way in keeping the pool water clean. Swimmers should take a cleansing shower prior to swimming and wash hand thoroughly after each trip to the restroom. Parents should also wash their hands after changing diapers. It may be surprising, but a common way for fecal matter to enter the pool isn't from an accident in the pool but from incomplete or improper cleaning after going to the bathroom. If even that small amount enters the water, it can potentially make other people sick.

While swallowing contaminated water is the biggest risk, you can also become sick through simple contact with the water, from breathing in the mists or aerosols from water contaminated with germs, as in hot tubs or spas, or even the chemicals created when chlorine interacts with the organic compounds found in urine, sweat, and feces. There is a common misperception that the strong, unpleasant chlorine odor found particularly at indoor pools is due to high levels of chlorine. The smell is actually the result of a buildup of what are known as chloramines, the compounds formed when chlorine is working overtime to disinfect substances like urine in the pool.

The most common pathogens that cause RWI's are microorganisms known as Cryptosporidium and E.coli O157:H7.<sup>1</sup> Chlorine is an excellent disinfectant and it can take care of many pathogens quickly. Some, however, can live in pool water for some time, and "Crypto" can live in pool water for days. Crypto can be life-threatening in people with compromised immunity. Children and pregnant women are also more at risk for severe illness. Crypto and E.coli cause acute gastrointestinal illness. Other pathogens of concern that cause acute gastrointestinal illness are norovirus, shigella, and giardia. These disease-causing germs can be found in natural water as well, even in that crystal clear mountain stream. Resist the urge on your hiking trip for a sip! You

should never drink from a natural body of water. Pets can also be sicked by contaminated water. Germs like Legionella and Pseudomonas can cause acute respiratory illness and along with Pseudomonas, Avian schistosomes and algal toxins can affect the eyes, ears and skin.<sup>2</sup>



The very best way to protect yourself and others is to stay out of the pool for two weeks following a diarrheal illness. Keep water out of your mouth and dry your ears after you swim. It is also helpful to understand what to expect when an accident does happen in the pool. The State of Nebraska's regulations for swimming pool operators are designed to protect the public from RWI's. If a solid stool is found in the pool, the pool will be cleared immediately. Pool staff will remove the stool and verify that the chlorine levels and pH of the pool meet the required levels. Bathers must remain out of the water for 30 minutes while the disinfection levels are assessed. While it is definitely an unpleasant thought, solid stool is considered "healthy stool." If there is a diarrheal accident, however, it is considered to be a potentially infectious stool so the pool will be cleared and immediately closed. Staff will remove as much as possible and then pool operators will raise chlorine to very high levels. This level must be maintained for a specified number of hours. The pH, which is important in the effectiveness of the chlorine, must be lowered to levels incompatible with swimming as well. The pool filter must cycle through the entire volume of pool water a number of times and the entire filtration system must go through its own cleaning process. Even after these processes are complete, it can take days for the chemical levels to return to safe swimming levels. One "accidental fecal release" as it is known to pool operators, can close a swimming pool for days. In the summer heat or any time, that is the last thing a pool operator wants to do. Keeping recreational water safe takes a community approach. Education is the key! You can do a great deal to keep swimmers in the pool and disease-causing germs out of the pool!

We hope you have found this 3-part series on water safety informative. Water safety is a body of knowledge designed to allow everyone to enjoy the many benefits of water! From the team at WCDHD, we wish you a safe and healthy summer of swimming!

<sup>1,2,3</sup>Centers for Disease Control and Prevention; Healthy Swimming

