

Epidemiology Newsletter

June 2011

Chattanooga - Hamilton County Health Department

Recreational Water Illnesses

Recreational water illnesses (RWIs) are caused by germs spread by swallowing, breathing in mists or aerosols of, or having contact with contaminated water in swimming pools, hot tubs, water parks, water play areas, interactive fountains, lakes, rivers, or oceans. RWIs can also be caused by chemicals in the water or chemicals that evaporate from the water and cause indoor air quality problems.

Outbreaks of illness associated with recreational water venues are on the rise. RWIs include a wide variety of infections, including gastrointestinal, skin, ear, respiratory, eye, neurologic, and wound infections. The most commonly reported RWI is diarrhea. Diarrheal illnesses are caused by germs such as Crypto (short for *Cryptosporidium*), *Giardia*, *Shigella*, norovirus and *E. coli* O157:H7.

Waterborne Outbreaks

A waterborne outbreak is a cluster of two or more infections caused by the same agent(s) and linked to the same water exposure. Outbreaks can be caused by water contaminated with pathogens, chemicals, or toxins which can be spread through ingestion of, contact with, or breathing contaminated water.

All suspected waterborne outbreaks must be reported to the Hamilton County Health Department by calling 423-209-8190.

Recreational Water Outbreaks- Top 5 Causes

- Pseudomonas*
- Cryptosporidium*
- Shigella*
- Legionella*
- Norovirus/Calicivirus

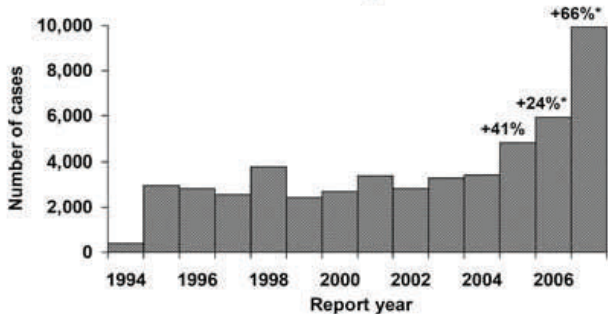
Cryptosporidiosis

Crypto, which can stay alive for days even in well-maintained pools, has become the leading cause of swimming pool-related outbreaks of diarrheal illness. From 2004 to 2008, reported Crypto cases in the US increased over 200%.

Cryptosporidium is a parasite that lives in the intestine of humans and animals. It may be found in soil, food, water or surfaces that have been contaminated by feces from infected humans or animals. The most common symptom is watery diarrhea. In addition, stomach cramps, nausea, vomiting, dehydration, and fever can also occur. Incubation is approximately 7 days (range 2 to 10 days) and illness can last for 2 weeks. Persons with symptoms of crypto are contagious and can spread the organism with inadequate hygiene practices.

Diagnosis of crypto involves testing stool specimens for ova and parasites. Individuals with crypto should not be in any recreational water (pools, hot tubs, lakes, rivers, oceans, etc.) for at least 2 weeks after diarrhea stops.

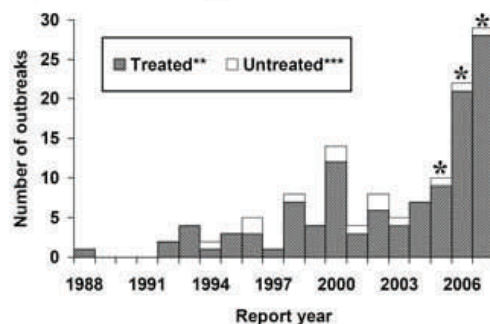
Figure 1: Cryptosporidiosis Non-Outbreak Cases: United States, 1994–2007*



* Counts for 2006 and 2007 are preliminary. Annually (1994–2007), 17–58% of case reports do not indicate outbreak status. Cases with “unknown” outbreak status are included in this graph.



Figure 2: Cryptosporidiosis Outbreaks by Recreational Water Type: United States, 1988–2007*



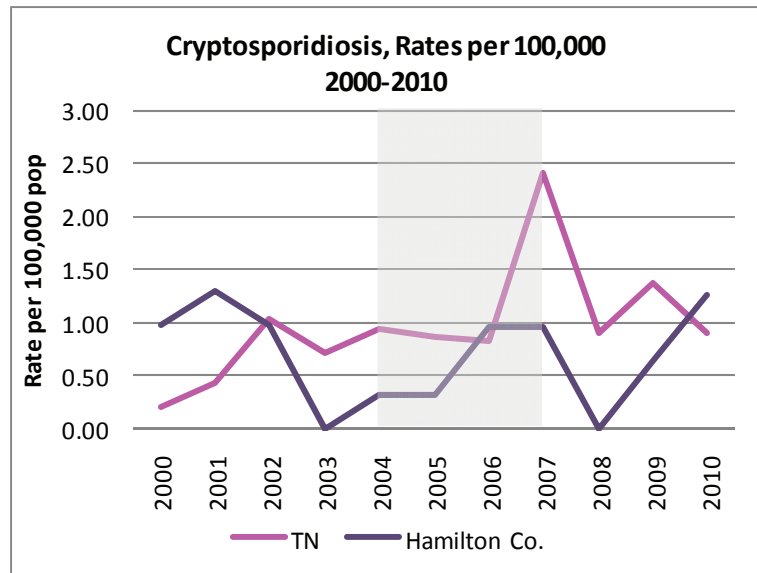
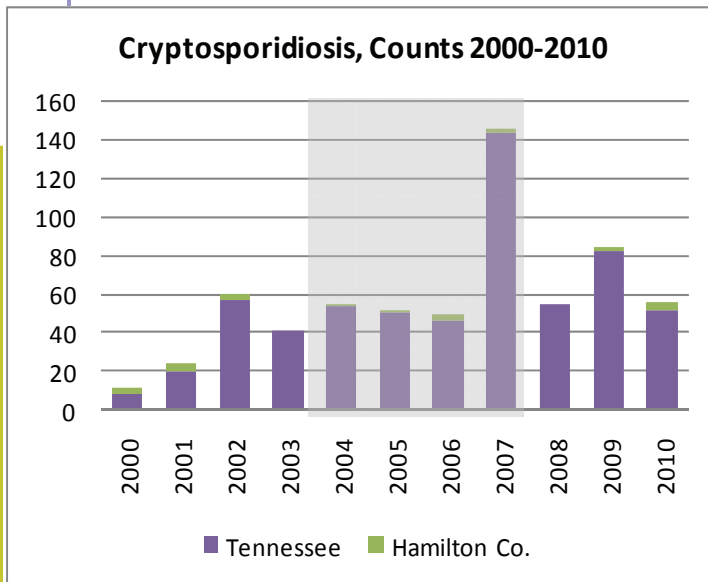
* Counts for 2005–2007 are preliminary. N=68 (1998–2004); *MMWR* 2006;55(SS12):1–30.

** Pools, recreational water parks, interactive fountains, etc.

*** Lakes, rivers, oceans, etc.



Cryptosporidiosis in Hamilton County



Source; Tennessee Department of Health

The shaded boxes on each chart highlight the years that CDC reported a 200% national increase in Cryptosporidiosis cases. As displayed, Tennessee's count also increased, peaking in 2007, whereas Hamilton County's counts have been on the rise since 2008.

Prevention of Recreational Water Illness

Health professionals need to educate the public on risks associated with recreation water venues and ways to avoid illness. Health swimming messages for medical providers, the public and pool operators can be found at the CDC website www.healthyswimming.org

With RWI outbreaks on the rise, pool operators and swimmers need to [take an active role](#) in helping to protect the public and themselves and prevent the spread of germs.

Practice.... healthy swimming behaviors.

- Refrain from swimming when you have diarrhea.
- Avoid swallowing pool water or even getting it in your mouth.
- Shower before swimming and wash your hands after using the toilet or changing diapers.
- Take children on bathroom breaks or check diapers often.
- Change diapers in a bathroom and not at poolside and thoroughly clean the diaper changing area.
- Wash your child thoroughly with soap and water before swimming.

Pool Operators.... best practices

- Maintain pool water quality according to existing public health requirements
- Educate all staff on pool maintenance procedures and healthy swimming practices
- Respond to fecal accidents in a pool according to CDC recommendations
- Educate swimmers using signage, brochures or in-person sessions for large swimming groups
- Maintain adequate supplies in restrooms and changing rooms for good hygiene habits

Tennessee Department of Health Swimming Pool Regulations

Health professionals should be aware of Tennessee’s Swimming Pool Regulations. Patients with communicable diseases should be educated about when they can swim and/or work safely in and around a pool.

Rule 1200-23-5-.02 (3) c. of Tennessee Department of Health Swimming Pool Regulations states the following:

“**Communicable Disease.** All patrons or swimmers having a communicable disease or displaying signs and symptoms of a communicable disease which can be transmitted through normal swimming pool use shall be excluded. No person having a communicable disease or displaying signs and symptoms of a communicable disease shall work at any type pool in a function in which there is a likelihood that they would transmit the disease to any other person.”

Waterborne Disease Outbreaks in Tennessee

The Tennessee Department of Health defines a waterborne disease outbreak as two or more people with the same illness, epidemiologically-linked, with water as the probable source. Since 1972, Tennessee has experienced 43 outbreaks of illness epidemiologically linked to water as the source. The figure below displays these outbreaks by year. It is important for providers to be aware that waterborne organisms continue to be the cause of a number of Tennessee disease outbreaks. Many of these illnesses are preventable as well as treatable.



Source: Tennessee Department of Health

Counts of Reportable Diseases: 2011	
Hamilton County Diseases Reported	2011
Bacterial meningitis, other	2
Brucellosis	0
Campylobacteriosis	6
Chagas Disease	0
Creutzfeldt –Jakob Disease	0
Cryptosporidiosis	0
Dengue Fever	0
Ehrlichiosis/Anaplasmosis	0
Group A Streptococcus, invasive	6
Group B Streptococcus, invasive	5
Guillain-Barre syndrome	2
Haemophilus influenzae, invasive	1
Hepatitis A, acute	0
Hepatitis B, acute	1
Hepatitis C, acute	1
Legionellosis	0
Listeriosis	0
Lyme disease	1
MRSA (S.aureus, methicillin resistant), invasive	53
Malaria	0
Mumps	0
Neisseria meningitidis, invasive	1
Pertussis	1
Q Fever	0
Salmonellosis	15
Shiga toxin-producing Escherichia coli (STEC)	0
Shigellosis	1
Spotted Fever Rickettsiosis	5
Streptococcus pneumoniae, invasive disease (IPD)	25
Toxic-shock Syndrome, Staphylococcal	0
Typhoid fever (Salmonella typhi)	0
Vibriosis (non-cholera Vibrio species infections)	1
VRE (Vancomycin-Resistant Enterococcus), invasive	7
Yersiniosis	0

For a year by year comparison of reportable disease counts, visit our website: <http://health.hamiltontn.org/Epidemiology/default.aspx> and click ‘Hamilton County Counts of Reportable Diseases by Year.’



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