Fact Sheet  
Cryptosporidium

Issued July, 2013

What is Cryptosporidium?

*Cryptosporidium* is a microscopic parasite that causes the diarrhoeal disease cryptosporidiosis. Both the parasite and the disease are commonly known as "Crypto."

There are many species of *Cryptosporidium* that infect humans and animals. The parasite is protected by an outer shell that allows it to survive outside the body for long periods of time and makes it very tolerant to chlorine disinfection.

While this parasite can be spread in several different ways, water - drinking water and recreational water (Swimming Pools, Lakes and rivers) - are the most common methods of transmission.

It is transmitted by the faecal-oral route, with both animals and humans serving as potential reservoirs.
What is cryptosporidiosis?

Cryptosporidiosis is the name given to the disease caused by a group of organisms called Cryptosporidium. The organisms infect the lining of the small intestine and can cause severe diarrhoea and poor absorption. (an inability to absorb nutrients).

Cryptosporidium is present in the faeces matter of infected humans and animals. Infection occurs when the parasite is ingested.

A person is most infectious when they have diarrhoea, but the parasite may be excreted for several days after symptoms disappear.

Typical swimming pool transmission is most likely to occur when an accidental release or faecal fouling incident occurs, and the affected water is then ingested before it has been treated, or where water pulled in from the mains after backwash is already contaminated.

Human cryptosporidiosis became a notifiable disease in Ireland in 2004. In 2010 there were 294 cases of cryptosporidiosis were notified in Ireland, (6.9 per 100,000 population) with 34% of notified cases reported as hospitalised for their illness. Who to contact in the event of an outbreak is available on the link below.


In 2008 (the most recent year for which data is available), the ECDC reported an overall incidence rate of 2.44 per 100,000 population in the European Union, with Ireland reporting the highest rate among those countries reporting on this disease at the time.
What are the symptoms?

- The most common symptoms of cryptosporidiosis are watery diarrhoea and stomach cramps. Other symptoms may include fever, nausea, vomiting and loss of appetite. Some people with the infection have no symptoms at all.
- The first signs of illness appear between 1-12 days (average 7 days) after a person becomes infected.
- Symptoms may come and go and may last days to weeks. People with a weak immune system may have more severe symptoms that can last for months.

How is it spread?

Transmission can occur in one of the following ways.

Primary: Transmission is through ingestion of water or food contaminated with the faeces of an infected human or animal.

It is likely that more than 90% of cases will be transmitted through water. High risk foods include fresh produce irrigated with inadequately treated water. Direct contact with animals and swimming pools are increasingly recognised as important transmission routes.

Secondary: Person to person transmission can be a significant feature of spread particularly in the case of shedding food handlers.

Cases of Cryptosporidium in Ireland

In March 2007, a suspected outbreak occurred in Galway after the source of water for much of the county, Lough Corrib, was suspected to be contaminated with the parasite. A large population (90,000 people), including areas of both Galway City and County, were advised to boil water for drinking, food preparation and for brushing teeth.

On 21 March 2007, it was confirmed that the city and county’s water supply was contaminated with the parasite.
The area’s water supply was finally given approval on 20 August 2007, five months after *Cryptosporidium* was first detected.

Around 240 people are known to have contracted the disease; experts say the true figure could be up to 5,000.

Since May 2011, there has been an ongoing outbreak in South Roscommon in Ireland. Although many people have been diagnosed with cryptosporidiosis, the source of the parasite has not yet been found. Testing continues and Roscommon County Council are now considering introducing Ultra Violet Filtration to their water treatment process in the next 12 months. Residents are being advised to boil the tap water and there is no sign of this boil notice being lifted in the near future.

In May 15 2013, in Roscommon, Ireland, another outbreak of the cryptosporidiosis was reported and a boil water notice was issued. This was the second time the parasite was detected in a month in the Roscommon water supply. The source of one of the outbreaks had been linked to the agricultural community. To date, 13 people have been treated for Cryptosporidiosis and the boil water notice is still in effect.

This year ILAM have been consulted by the HSE on cases of cryptosporidium associated with Irish swimming pools. In light of this the HSE are checking for quarterly Cryptosporidium testing for this going forward.

In 2003 Teagasc issued the following report, which includes a recommendation to have a licensing of Swimming Pool Operators, in an effort to control the spread of the disease through swimming pool water. See report below.

**Prevention**

ILAM recommends the following steps be taken to minimize the risks associated with Cryptosporidium in swimming pools.

1. Ensure that an ILAM Swimming and Spa Pool Operator Certified (ISSPC) Pool Plant Operator or a holder of an equivalent qualification is on site at all times.

2. Ensure that a copy of the ISSPC Pool Plant Manual is available on site for reference at all times, and that the guidance within this document is followed at all times.

3. Ensure that all staff are trained in the content of the Emergency Action Plan (EAP) which should detail action to be taken in the event of a faecal fouling incidence and maintain strict adherence to the Pool Water Treatment Advisory Group (PWTAG) / ISSPC guidance on faecal fouling management.

   www.pwtag.org/TN%20faecal%20matter.php

4. That where a boil notice has been introduced at a local level that backwashing is avoided or kept to an absolute minimum until such time as the boil notice has been lifted.

5. That a flocculent such as Poly Aluminium Chloride be consistently used; ideally dosing on a continuous basis.

6. That backwashing takes place in line with ISSPC & Installers Guidelines. Excessive backwashing should be avoided to allow the filter media to settle or ripen and in doing so and be more effective.

7. That water dilution rates are maintained in line with the ISSPC guidance of 30 litres per bather per day.
8. That quarterly bacteriological water testing is completed to include cryptosporidium. **Note:** ILAM recently secured preferential rates with City Analysts for quarterly bacteriological water testing.

9. Babies and toddlers are only allowed into the pool wearing appropriate swimming nappies.

10. The Public are educated on the need to shower before swimming and that pre-swim showers are strictly enforced.

11. That the Public are educated not to come swimming until at least 14 Days after a bout of diarrhea.

12. That the filter media is regularly cleaned and that the filter media is replaced in line with the recommendations of the Pool Installer.

**The most common causes of outbreaks of Cryptosporidium are:**

- Faecal Release
- No Pre-swim Showers
- Ozone Treatment not working
- Backwash problems
- Inadequate Filtration
- Sewage Cross Contamination