

How worried should I be about cryptosporidiosis? Am I safe at the pool?

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You might have heard of something called "[cryptosporidiosis](#)" recently, closely followed by warnings to stay away from your local swimming pool if you've had diarrhea.

More than 700 cases of this gastrointestinal disease were reported [in Queensland](#) in January, which is [13 times more](#) than in January last year. Just under 500 cases have been recorded in [New South Wales](#) this year to-date, while [other states](#) have similarly reported an increase in the number of cryptosporidiosis infections in recent months.

Cryptosporidiosis has been listed as a [national notifiable disease](#) in Australia since 2001. But what exactly is it, and should we be worried?

What causes cryptosporidiosis, and who is affected?

Cryptosporidiosis is the disease caused by the parasite *Cryptosporidium*, of which there are two types that can make us sick. *Cryptosporidium hominis* only affects humans and is the major cause of [recent outbreaks in Australia](#), while *Cryptosporidium parvum* can also affect animals.

The infection is spread by spores called oocysts in the stools of humans and animals. When ingested, these oocysts migrate and mature in the [small bowel](#). They damage the small bowel lining and [can lead to diarrhea](#), nausea, vomiting, fever and abdominal discomfort.

Most people develop symptoms anywhere from [one to 12 days](#) after becoming infected. Usually these symptoms resolve within two weeks, but the illness may last longer and can be severe in those with a weakened immune system.

Children and the elderly tend to be the most commonly affected. Cryptosporidiosis is more prevalent in [young children](#), particularly those [under five](#), but the disease can affect people of any age.

So how do we catch it?

Most major outbreaks of cryptosporidiosis have been due to people drinking contaminated water. The largest recorded outbreak occurred in [Milwaukee in 1993](#) where 403,000 people were believed to have been infected.

Cryptosporidium oocysts are very small in size and in Milwaukee they passed through the filtration system of one of the [water treatment plants](#) undetected, infecting the city's water supply. As few as [ten oocysts](#) can cause infection, making it possible for contaminated drinking water to affect a very large number of people.

Four days after infection a person with cryptosporidiosis can shed [up to ten billion oocysts](#) into their stool a day, with the shedding persisting for about two weeks. This is why one infected person in a swimming pool can infect the entire pool in a single visit.

Cryptosporidium oocysts excreted in the feces of infected humans and animals can also reach [natural bodies of water](#) such as beaches, rivers and lakes directly through sewer pipes or indirectly such as in manure transported with surface runoff after heavy rain.

[One study](#) which modeled Cryptosporidium concentrations in rivers around the world estimated there are anywhere from 100 to one million oocysts in a liter of river water.

In [Australia](#), cryptosporidiosis outbreaks tend to occur during the late spring and early summer periods when there's an increase in recreational water activities such as swimming in natural water holes, water catchments and public pools. We don't know exactly why cases have seen such a surge this summer compared to other years, but we know Cryptosporidium is very infectious.

Oocysts have been found in foods such as [fresh vegetables](#) and [seafood](#)

but these are not common sources of infection in Australia.

What about chlorine?

Contrary to popular belief, chlorine doesn't kill off all infectious microbes in a swimming pool. *Cryptosporidium* [oocysts are hardy](#), thick-walled and resistant to chlorine and acid. They are not destroyed by chlorine at the normal concentrations found in swimming pools.

We also know oocysts can be [significantly protected](#) from the effects of chlorine in swimming pools by fecal material, so the presence of even small amounts of fecal matter contaminated with *Cryptosporidium* in a swimming pool would necessitate closure and thorough decontamination.

Young children and, in particular, children in nappies are known to increase the potential for disease transmission in recreational water. Proper nappy changing, frequent bathroom breaks, and showering before swimming to remove fecal residue are helpful ways to reduce the risk.

Some sensible precautions

Other measures you can take to reduce yours and others' risk of cryptosporidiosis include:

- avoid swimming in natural waters such as rivers and creeks during and for at least three days after heavy rain
- avoid swimming in beaches for at least one day after heavy rain
- avoid drinking untreated water such as water from rivers or springs. If you need to drink untreated water, boiling it first will kill the *Cryptosporidium*
- avoid swallowing water when swimming if you can

- if you've had diarrhea, avoid swimming for at least two weeks after it has resolved
- avoid sharing towels or linen for at least two weeks after diarrhea has resolved
- avoid sharing, touching or preparing food that other people may eat for at least 48 hours after diarrhea has resolved
- wash your hands with soap and water after going to the bathroom or before preparing food (Cryptosporidium is not killed by alcohol gels and sanitisers).

Not all cases of diarrhea are due to cryptosporidiosis. There are many other causes of infectious gastroenteritis and because the vast majority of the time recovery is uneventful you don't need to see a doctor unless very unwell. If you do suspect you may have cryptosporidiosis you can ask your doctor to refer you for a stool test.

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