



Great Ormond Street Hospital for Children NHS Foundation Trust: Information for Families

Reducing exposure to cryptosporidial infection: information for families with an immune-compromised child

This information sheet from Great Ormond Street Hospital (GOSH) is for families with a child who is thought to be at particular risk from cryptosporidial infection. We hope that it will help you to understand something about the infection and advise on ways in which you can minimise the risk of acquiring the infection.

The advice in this information is not applicable to children, young people and adults with a normal immune system.

What is Cryptosporidium Infection?

Cryptosporidium parvum is an infectious parasite found in humans and animals. You may hear it referred to as Cryptosporidium or *C. parvum*. It can cause a disease called cryptosporidiosis. Cryptosporidium multiplies in the gut of infected humans and animals and forms little eggs called oocysts which are excreted in faeces. These oocysts are very hardy and survive many months in the environment in water and soil. If ingested, the oocysts can transmit the infection and the whole cycle starts again.

Although uncommon in children and adults with a normal immune system, Cryptosporidium can cause a temporary diarrhoeal illness lasting about two weeks usually followed by a full recovery. However, for a child or adult with an impaired immune system, severe diarrhoea, which is sometimes life threatening, may occur. In some immune compromised patients, infection may get into the liver and cause a persistent infection leading to liver damage known as sclerosing cholangitis.

Who is most at risk?

- Some children or adults with HIV/AIDS.
- Children or adults with weakened immune systems that is, those receiving immune suppressive treatment such as chemotherapy, and organ or bone marrow transplant patients.
- Children or adults with some types of primary immune deficiency disease notably CD40 ligand deficiency and combined immune deficiency syndromes.

This document must be read in conjunction with all Great Ormond Street Hospital NHS Foundation Trust Policies and Procedures.



Great Ormond Street Hospital for Children NHS Foundation Trust: Information for Families

How is it spread?

Cryptosporidium is spread by the faeco- oral route - in other words the organism has to be ingested or swallowed following direct contact with infected human or animal faeces. Particular sources of infection are:

- Adults or children with cryptosporidial infection;
- Infected animals;
- Drinking or contact with water contaminated with Cryptosporidium;
- Uncooked food or foods washed in contaminated water;
- Soil contaminated with human or animal faeces.

How safe is drinking water?

Very rarely, outbreaks of Cryptosporidium have occurred in mains supplied drinking water when it is usual for warnings to be issued by suppliers to affected households. The risk of acquiring Cryptosporidium from water supplies during non-outbreak periods is uncertain but thought to be low. However, as a precaution the Department of the Environment recommends that: "All water, from whatever source, that might be used by an immuno-compromised person should be brought to the boil and allowed to cool before use."

Households with private water supplies have a higher risk of being contaminated, and individuals should be aware that some water fountains, campsites or remote holiday accommodation may have private water supplies which cannot be considered universally safe from Cryptosporidium.

Water from the tap or from bottles and ice used in restaurants, bars, theatres and other such places cannot be relied upon to be safe.

The use of water filters may reduce the risk of Cryptosporidium but no studies comparing boiling versus filtering water have been performed. If filters are used, individuals should be aware that appropriate filters must be professionally fitted into your water system, with a filter pore size no greater than 1 micron wide and that great care is needed to ensure that filters are maintained and changed regularly.

This document must be read in conjunction with all Great Ormond Street Hospital NHS Foundation Trust Policies and Procedures.



Great Ormond Street Hospital for Children NHS Foundation Trust: Information for Families

Is it safe to have pets?

Newborn and very young animals may pose a small risk of cryptosporidial infection. When contemplating acquiring a new pet, avoid:

- bringing any animal with diarrhoea into the household;
- acquiring a puppy or kitten less than six months old;
- adopting stray animals.

For those at risk of Cryptosporidium, it is not generally necessary to destroy or give away pets that have already been acquired but every effort should be made to keep them in good health with advice from a vet if necessary.

Minimising the chance of your child acquiring cryptosporidial infection

It is not possible to totally eliminate the risk of developing cryptosporidial infection and, despite rigorous efforts to reduce exposure, some children may go on to develop the infection. The following is a practical guide, that may help reduce but not eliminate the risk completely.

- All tap or bottled water should be boiled before drinking.
- Ensure dairy products and fruit juices are pasteurised.
- Avoid paddling or toddler pools (older children and adults could swim in chlorinated swimming pools but avoid swallowing excessive quantities of water).
- Avoid contact with human or animal waste (in lakes, rivers, beaches, sand and outdoor children's sandpits, parks and garden soil).
- Avoid exposure to farm animals (especially calves and lambs), new born domestic animals less than six months old (such as kittens and puppies) and any stray, sick or very old domestic pets.
- Careful hand-washing after accidental contact with faeces or animals.
- Avoid excessive contact with adults or children with diarrhoeal illness.

Monitoring for signs of Cryptosporidial infection

Anyone thought to be at particular long term risk from Cryptosporidium should be monitored closely for signs of infection. Any episode of diarrhoea should be promptly investigated by your doctor and stool samples should be analysed regularly. Occasionally your doctor may recommend assessment by a liver specialist who will look more closely for signs of infection in the liver. Sometimes it may be necessary to take a small sample of the liver by carrying out a liver biopsy.

This document must be read in conjunction with all Great Ormond Street Hospital NHS Foundation Trust Policies and Procedures.



Great Ormond Street Hospital for Children NHS Foundation Trust: Information for Families

Medicines effective against Cryptosporidium

Children and adults with a normal immune system rarely need treatment for cryptosporidial infection but those with impaired immune systems may benefit from treatment either as preventative therapy or for treating the infection once it occurs. At present not enough information is available to recommend any specific therapy for cryptosporidiosis but some drugs have been shown to offer some effect against *Cryptosporidium parvum*.

Paromomycin is an antibiotic that is thought to reduce the symptoms of cryptosporidial infection but does not usually clear or “cure” it completely. Your doctor may suggest taking it as a prevention to reduce the risk of acquiring the infection or if the infection is present as a treatment to lessen the effects of the illness.

Similarly, Nitazoxanide can help to control symptoms although is unlikely to clear the infection completely.

Azithromycin is another medicine that may be given once cryptosporidium infection is present and it may lessen the severity of diarrhoea and in some cases may clear the oocysts from the stool.

Further information

If you want to know more about *Cryptosporidium*, you should consult your family doctor (GP) or hospital specialist.

Further information about water supplies can be obtained from the Drinking Water Inspectorate by telephoning 0300 068 6400 or visiting their website at www.dwi.defra.gov.uk/index.htm