

# Chapter 9: Management of specific infectious diseases

**This section is intended as a brief guide to common infectious diseases in childhood. It is not intended as a diagnostic guide or as a substitute for consulting a doctor. Further information on the individual diseases is available on the HPSC website ([www.hpsc.ie](http://www.hpsc.ie)) and a more specific web-link is provided at the end of each individual disease section.**

A child who has an infectious disease may show general symptoms of illness before development of a rash or other typical features. These symptoms may include shivering attacks or feeling cold, headache, vomiting, sore throat or just vaguely feeling unwell. Depending on the illness the child is often infectious before the development of characteristic symptoms or signs, e.g. rash.

When a pupil shows these general symptoms or more specific symptoms, parents should be contacted so that they can collect the child with a view to consulting their GP if necessary. In the meantime, the pupil should be kept warm and comfortable, and away from the main group of pupils. If symptoms appear to be serious or distressing, an ambulance and/or doctor should be called. If a school is concerned that there may be an outbreak of an infectious disease they should contact their local Department of Public Health for further advice and support. See Appendix 7 for contact details of local Departments of Public Health.

**It is important that any pupils or staff members who are unwell should not attend the school.**

They should only return once they are recovered (see exclusion notes for the different diseases).

## **Vulnerable PUPILS**

Some children may have long-term medical conditions that make them vulnerable to infections that would rarely cause problems in other children. These include children:

- undergoing treatment for leukaemia or other cancers.
- on high doses of steroids by mouth.
- who have conditions, which seriously reduce immunity.

Schools will normally have been made aware of such children. They are particularly vulnerable to chickenpox or measles and if exposed to either of these infections, their parent/carer should be informed promptly and further medical advice sought. It may be advisable for vulnerable pupils to have additional immunisations e.g. pneumococcal and influenza vaccinations. The chickenpox virus causes shingles, so anyone who has not had chickenpox is potentially vulnerable to infection if they have close contact with a case of shingles.

Information on the more common communicable diseases is set out in the following pages.

## Chickenpox / Shingles

Chickenpox is a viral illness, which causes fever, general malaise and a characteristic blistering rash. The rash appears as small red “pimples” usually starting on the back, chest and stomach and spreading to the face, scalp, arms and elsewhere. Within a few hours the “pimples” become blisters, which begin to dry and crust within about 24 hours. Blisters may develop in the mouth and throat that can be painful and may give rise to difficulty in swallowing. The rash appears as a succession of crops over 3 to 5 days.

Chickenpox is not usually severe in children but can cause more serious symptoms in adults. The virus lies dormant in the body after chickenpox and may cause an attack of shingles in later life. A person with shingles is infectious and can give others chickenpox. It is not possible to get shingles from a case of chickenpox. The disease spreads easily from person-to-person. The greatest risk of transmission is just before the onset of the rash.

**Precautions:** Pregnant women or individuals with impaired immunity who have not had the disease and are in contact with a case should seek medical advice promptly.

Children under 18 with chickenpox should not be given aspirin or any aspirin containing products due to an association with Reyes syndrome, a very serious and potentially fatal condition.

**Exclusion:** Those with chickenpox should be excluded from school until scabs are dry; this is usually 5-7 days after the appearance of the rash.

Those with shingles, whose lesions cannot be covered, should be excluded from school until scabs are dry.

**Resources:** Useful information on chicken pox can be found at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/VaricellaChickenpox/>.

## Conjunctivitis (*Pink eye*)

Conjunctivitis is an inflammation of the outer lining of the eye and eyelid, and causes a sore or itchy red eye with a watery or sticky discharge. It may be caused by germs such as bacteria or viruses, or it may be due to an allergy (as in hay fever). Treatment depends on the cause but is often by eye drops or ointment. Conjunctivitis caused by bacteria and viruses may be spread by contact with the eye discharge, which gets onto the hands when a pupil rubs the sore eye.

**Precautions:** Regular hand washing will prevent person to person transmission.

**Exclusion:** Exclusion is not generally indicated but in circumstances where spread within the class or school is evident it may be necessary to recommend exclusion of affected pupils until they recover, or until they have had antibiotics for 48 hours.

## Diphtheria

Diphtheria now rarely occurs in this country but it is necessary to maintain a high rate of immunisation to prevent its return. It is a bacterial infection that can cause a thick coating in the nose, throat and airway. Complications include heart failure, paralysis, severe breathing problems or difficulty in swallowing.

**Precautions:** Pupils should be appropriately immunised.

**Exclusion:** Very specific exclusion criteria apply and will be advised on by the Department of Public Health.

**Resources:** Useful information on diphtheria can be found at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/Diphtheria/>.

## Gastroenteritis/ Food poisoning

The main symptoms of gastroenteritis are nausea, vomiting, diarrhoea and abdominal pain, which occur singly or in combination. Diarrhoea is an increase in bowel frequency (three or more loose bowel movements within 24 hours).

The illness usually lasts only a short time. The common route of spread is by hand-to-mouth and the ingestion of foods or liquids contaminated by germs. Some germs can be picked up from contaminated utensils or surfaces.

A variety of germs cause gastrointestinal illness, viruses (e.g. rotavirus, norovirus), parasites (e.g. cryptosporidium, giardia) and bacteria (e.g. campylobacter, VTEC, salmonella, shigella). Often the illness is short lived and does not require a visit to a doctor or specific identification of the germ responsible. However if someone is very sick, has bloody diarrhoea, if symptoms persist for more than a few days, or if there is a significant outbreak within a school then a specific diagnosis should be sought. To do this the doctor will request that a sample of faeces is sent to the laboratory for analysis.

Most cases do not require any specific treatment and resolve within a few days.

While the causes are varied, strict attention to personal hygiene is important to reduce the spread of disease.

**The most important ways to reduce spread of gastroenteritis are hand washing and exclusion.**

Pupils should be encouraged to wash hands after toileting, before eating, after contact with animals, after sporting or play activities, and after any contact with body fluids. All staff and pupils who have had gastroenteritis should be excluded while symptomatic and the 48 hours since their last episode of diarrhoea and/or vomiting.

**Environmental cleaning** is also very important in limiting the spread of gastroenteritis. See Chapter 6 for further information.

Most germs that cause gastroenteritis are very infectious and for that reason pupils or staff members who have had diarrhoea and/or vomiting should be excluded until 48 hours have elapsed since their last episode of diarrhoea and/or vomiting. More specific advice regarding exclusion may be given by the Department of Public Health where necessary.

**Resources:** Useful information on gastroenteritis can be found at <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/GastroenteritisorIID/>.

The following are the common germs responsible for gastroenteritis in Ireland:

## Campylobacter

This bacterial infection causes diarrhoea and abdominal pain that may be severe; it is usually spread from meat, especially poultry, but can be picked up from animals including pets.

**Precautions:** Preventive measures include care in the way food is stored, prepared, cooked, and by attention to basic hygiene in food handlers, affected people and those in contact with them. Strict attention to hand hygiene is essential to reduce spread of infection.

**Exclusion:** Staff or pupils who have had campylobacteriosis should be excluded while symptomatic and for 48 hours after their first formed faeces.

**Resources:** Useful information on campylobacter can be found at: <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/Campylobacter/>.

## Cryptosporidium

This parasite causes watery diarrhoea. It may be passed on by contact with animals and through contaminated water supplies.

**Precautions:** Strict attention to hand hygiene is essential to reduce spread of infection. Preventive measures also include careful supervision of pupils during farm visits and hand washing after touching animals. Cryptosporidiosis is associated with consumption of water from poorly maintained private water supplies. If a school's water is supplied from a private supply they should ensure the quality of this water. Further information is available in Appendix 1

**Exclusion:** Staff or pupils who have had cryptosporidiosis should be excluded for 48 hours after their first formed faeces. Cases should avoid using swimming pools for two weeks after their first formed faeces.

**Resources:** Useful information on cryptosporidium can be found at <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/Cryptosporidiosis/>.

## Norovirus (Winter vomiting bug)

Norovirus causes short lasting outbreaks of vomiting and diarrhoea. The virus is very contagious and extremely common. It is present in the infected person's vomit and faeces. Fortunately, most cases recover fully without complication.

**Precautions:** Strict attention to personal hygiene is important to reduce spread. Frequent hand washing is essential. Environmental cleaning is also critical as norovirus can survive on surfaces such as door handles, light switches desks etc for a number of weeks. See Chapter 6 for further advice on environmental cleaning and for Chapter 3 for advice on dealing with vomit.

**Exclusion:** Pupils or staff who have been vomiting or

have had diarrhoea should be excluded until 48 hours after resolution of their symptoms.

**Resources:** Useful information on how to manage episodes of vomiting and diarrhoea caused by norovirus can be found at <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/Norovirus/Factsheets/InformationforEmployers/MainBody,2693,en.html> and <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/Norovirus/Publications/File,2541,en.pdf>.

## Salmonella

Salmonella is a bacterial infection; it is usually caught from contaminated food, especially chicken, other meats and raw eggs, but increasingly cases among children are being linked to more unusual sources such as overseas travel and owning or being exposed to reptiles and snakes. Most cases are relatively mild but a significant proportion of cases will require admission to hospital, and very occasionally it can be fatal, especially in elderly patients.

**Precautions:** Preventive measures include care in the way food is stored and prepared, cooked, and by attention to basic hygiene in food handlers, affected people and those in contact with them. Strict attention to hand hygiene is essential to reduce spread.

**Exclusion:** Staff or pupils who have had salmonellosis should be excluded for 48 hours after their first formed faeces.

**Resources:** Useful information on salmonella can be found at <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/Salmonellosis/>.

## Shigella (Dysentery)

Shigellosis (or bacillary dysentery) is a bacterial infection that is usually spread from person-to-person. Most cases are mild, especially those picked up in Ireland. The shigella bacteria picked up in tropical countries tend to be more severe with bloody diarrhoea and a greater likelihood of hospital admission.

**Precautions:** Strict attention to personal hygiene and hand washing is important to reduce spread.

**Exclusion:** Staff or pupils who have had shigellosis should be excluded for 48 hours after their first formed faeces. For certain more severe types of shigella infection, it is recommended that the case should be excluded until two consecutive negative faecal specimens, taken after the first formed faeces at least 48 hours apart, have been obtained. Your local Department of Public Health can advise.

**Resources:** Useful information on shigella can be found at <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/Shigellosis/>.

## Verocytotoxigenic *E. coli* (VTEC)

VTEC is a particular strain of the *E. coli* bacterium, which produces a toxin that results in gastroenteritis, which ranges from watery diarrhoea, to bloody diarrhoea, to serious illness. A significant proportion of cases have no symptoms. The most severe complication, haemolytic uraemic syndrome (HUS) produces kidney failure and up to 10% of Irish cases of VTEC will develop HUS. Of those who develop HUS, as many as 2.5% to 5% of cases will be fatal making this a particularly serious disease. In addition, one quarter of children who develop VTEC-associated HUS will have lasting kidney damage.

In Ireland, the infection is most commonly associated with untreated water sources and with person to person spread. Spread may be foodborne, spread from undercooked beef being a common method of spread. Infection may also be acquired after contact with the faeces of farm animals and visiting petting farms. See Chapter 7 for advice on farm and zoo visits.

**Precautions:** Preventive measures include care in the way food is stored, prepared, and cooked, and by attention to basic hygiene in food handlers, affected people, and those in contact with them. Strict attention to hand hygiene is essential to reduce spread. Young pupils may require supervision of hand washing after toilet use and before meals. There should be adequate cleaning of toilet facilities. See Chapter 6 for further advice. VTEC can be associated with consumption of water from poorly maintained private water supplies. If a school's water is supplied from a private supply they should ensure the quality of this water. Further information is available in Appendix 1

**Exclusion:** Staff or pupils who have had VTEC should be excluded for 48 hours after their first formed faeces. If a pupil in a primary school develops VTEC advice can be sought from the local Department of Public Health.

**Resources:** Useful information on VTEC can be found at <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/VTEC/Guidance/>.

Further information can be found in the Report of the HPSC Sub-Committee on Verocytotoxigenic *E. Coli*, available on the Health Protection Surveillance Centre's website at <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/VTEC/Guidance/ReportoftheHPSCSub-CommitteeonVerotoxigenicEcoli/>.

Additional guidance to minimise the risk of VTEC during pet farm visits can be found on the Health Protection Surveillance Centre's website at <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/VTEC/Guidance/File,3973,en.pdf> and <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/VTEC/Guidance/File,3976,en.pdf>

## Glandular Fever (*Infectious Mononucleosis*)

Glandular fever, otherwise known as infectious mononucleosis is an illness caused by the Epstein Barr virus (EBV). It usually affects adolescents and young adults; infection in younger children is often mild, so mild sometimes that no-one recognises the child to be ill. Incubation is usually between 4 and 8 weeks. It may last for six weeks or more with swollen glands, fever and feeling generally unwell. Sometimes there is a rash or jaundice (yellowing of the skin and whites of the eyes). The virus is spread from person-to-person via saliva, usually through kissing or being in close contact with a case or carrier. About a fifth of those who are infected become long-term carriers, being infectious for more than a year.

**Precautions:** Frequent hand washing and avoiding sharing of utensils will further reduce the risk of transmission.

**Exclusion:** Generally not necessary. Those involved in high risk body contact/collision sport should be excluded from full team participation for 4 weeks (see Chapter 8 for further information).

## Haemophilus Influenzae

### Type b (*Hib*)

Hib can cause serious illness including meningitis (inflammation of the lining around the brain), septicaemia (blood poisoning), epiglottitis (swelling in the throat that causes choking) and osteomyelitis (infection of the bone). The bacteria that cause Hib live in the nose and throat. A person who carries the bacteria can spread it by coughing, sneezing or even breathing. Hib disease is more common in pre-school children aged under four. Babies under one year of age are especially at risk of Hib disease.

**Precautions:** A Hib vaccine is available as part of the routine childhood immunisation schedule. When a case of Hib disease occurs the local Department of Public Health should be informed. The public health doctors will provide an explanatory letter and leaflet to parents and staff, if appropriate.

**Exclusion:** Cases of serious Hib disease will be too ill to attend school. Contacts do not need to be excluded.

**Resources:** Useful information on Hib can be found on the HPSC website at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/Haemophilusinfluenzae/Factsheets/HaemophilusinfluenzaeFrequentlyAskedQuestions/>

## Hand, Foot and Mouth

### Disease (HFM)

#### (*Enteroviral infection*)

This is generally a mild illness, caused by a type of virus known as enterovirus. The child develops a fever and rash with blisters, which appear especially in the mouth and on the hands and feet. It is spread by direct contact with the secretions of the infected person and by coughing and sneezing. It is also found in the faeces of infected people and therefore can be spread by the faecal-oral (faeces to mouth) route. Some infected children can continue to shed the virus in their faeces for several weeks after recovery. Some people who are infected may not develop any symptoms but can still spread the virus. The person becomes infectious before their symptoms appear. Younger children are more susceptible to infection due to close contact.

**Precautions:** Frequent hand washing especially after contact with secretions from the nose or throat and after using the toilet reduces the risk of transmission.

**Exclusion:** While a pupil is unwell he/she should be kept away from school. Exclusion of a well pupil with HFM is generally not required. If evidence exists of ongoing transmission within the school exclusion of pupils until the spots have gone may be necessary. Advice should be sought from your local Department of Public Health.

**Resources:** Useful information on enteroviral infections can be found on the HPSC website at <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/EnteroviralInfections/>.

## Headlice

Lice are small insects, which may live on the head and hairy parts of the body. The type of louse which affects the head is particularly common and anyone can catch them. Lice spread by direct head-to-head contact with an infected person and therefore tend to be more common in children as their play activities facilitate this type of contact. Live lice are transmitted when the lice are alive on a person's head. Lice cannot live away from a human host; most die within 3 days. Lice cannot jump, swim or fly. Their presence does not reflect standards of hygiene. The female lice lay eggs which glue to the hair and only become easily visible when they have hatched and are empty (nits). Nits remain in the hair until it falls out, which may take up to 2 years. Itching and scratching are usually the first signs of headlice but are due to an allergic reaction which can take four to eight weeks to develop after the initial infection. The presence of nits (empty egg casts) does not mean that active infection is present and is not an indication for treatment.

Treatment is only required if live lice are seen in the hair (not nits). There are a number of different treatment options. Research suggests that the use of chemical agents is more effective than other treatment options, such as lavender, tea-tree oil, and eucalyptus. Treatments such as dimeticone, phenothrin, or malathion are recommended. Dimeticone (Hedrin<sup>®</sup>) is a non-neurotoxic agent. It is important to follow the treatment instructions carefully. Alternatively parents may wish to try mechanical removal of lice by wet combing with special narrow-toothed combs and conditioner ("bug busting"). Results of research on this method are mixed. Results depend on a correct and consistent technique and time spent wet combing.

**Precautions:** The best way to stop infection is for families to learn how to check for lice on a regular basis. This way they can find any lice before they have a chance to breed. They can then treat them and stop them spreading. Regular combing of the hair with a fine-toothed comb (detection combing) should be encouraged at all times. It is better to do this on wet hair. Treatment is only required if live lice are seen in the hair (not nits). If live lice are detected on one member of the family it is important that all other family members are checked for headlice.

In school if live lice are seen on a pupil's head the pupil's parent(s) should be advised to inspect and treat their child for headlice. If there are several cases it may be of benefit to send a letter to all parents advising them to inspect their children's heads and initiate treatment only if live lice are seen.

**Exclusion** is unnecessary.

## Hepatitis A (*Yellow jaundice, Infectious hepatitis*)

This is usually a mild illness, particularly in children, caused by a virus, which infects the liver. The incubation period is between two-six weeks. The illness starts with fever, loss of appetite, nausea, stomach ache and after a few days, jaundice (a yellowing of the eyes and skin) may appear. It rarely leads to serious problems. A carrier state does not develop.

An infected person is infectious for approximately one week before the start of, and for a week or so after the appearance of jaundice. However, a person can be infected without developing any symptoms and so can be an unknown source of infection to others.

Hepatitis A is spread by hands which have not been properly washed after using the toilet, or by contaminated food or drinks.

**Precautions:** Scrupulous personal hygiene and hand washing is important to prevent spread and an adequate supply of liquid soap and disposable towels should be provided in washrooms.

Hepatitis A vaccine may be advised if there is evidence of ongoing transmission in the school. To be effective the vaccine must be given to contacts soon after they have been exposed.

**Exclusion** is recommended while someone is unwell, or until 7 days after the onset of jaundice, whichever is the later. The Department of Public Health will give advice on exclusion for staff and pupils as necessary.

**Resources:** Useful information on hepatitis A can be found at <http://www.hpsc.ie/hpsc/A-Z/Hepatitis/HepatitisA/>

## Hepatitis B

### (Serum hepatitis)

Hepatitis B infection is relatively rare in children in Ireland. People infected with the hepatitis B virus may become unwell with jaundice and fever or more commonly, may show no signs of infection. A small percentage of people do not clear the virus from their system and develop a chronic infection. This is referred to as a carrier state and this person remains infectious.

The hepatitis B virus is much more infectious than HIV. Hepatitis B infections are most commonly spread by sexual contact with an infected person or by blood-to-blood contact. The most common route for blood-to-blood contact is through sharing an infected needle during injecting drug use. The virus may also be passed from an infected mother to her baby before or during birth. In Ireland prior to the development of screening tests to screen blood donations for HBV and the treatment of blood donations to inactivate viruses the virus could be spread through the administration of infected blood or blood products.

All babies born from 1<sup>st</sup> July 2008 have been offered hepatitis B vaccine as part of their routine infant immunisations.

**Precautions:** Blood and body fluids should always be considered potentially infectious. Scrupulous hand hygiene should be observed after any contact with any blood or body fluids. Clothing contaminated with blood from any pupil should be placed in a plastic bag and sent home for cleaning. Further guidance on the management of spillages of blood and other body fluids and first aid is available in Chapter 3.

**Exclusion:** Staff or pupils who develop symptoms of acute hepatitis B will be too ill to be at school. Parents will be given specific advice by their child's doctor about when their child is well enough to return. Pupils with chronic hepatitis B should not have their activities restricted, nor be excluded from school. There is little evidence to suggest that these infections can be transmitted in school settings, and therefore carriers without symptoms should not be kept away. Staff with hepatitis B can work as normal; exclusion is not required.

**Resources:** Useful information on hepatitis B can be found at <http://www.hpsc.ie/hpsc/A-Z/Hepatitis/HepatitisB/>

## HIV/AIDS Infection

HIV is mostly spread by sexual contact with an infected person, by sharing an infected needle or by receiving blood from an infected person. The latter is extremely unlikely to occur now in this country as all blood is carefully screened. If a pregnant woman is infected she may pass the infection to her unborn child.

**Normal social contact, kissing, sharing cutlery or crockery, or using swimming pools or public toilets do not present a risk of transmission.**

**There is no risk to other pupils or staff from an HIV infected pupil attending a school provided standard precautions are in place. Pupils with the virus should not have their activities restricted, nor be excluded from school.**

**Precautions:** Blood and body fluids should always be considered potentially infectious. Scrupulous hand hygiene should be observed after any contact with any blood or body fluids. Clothing contaminated with blood from any pupil should be placed in a plastic bag and sent home for cleaning. Further guidance on the management of spillages of blood and other body fluids is available in Chapter 3.

**Exclusion** of pupils and staff who are living with HIV is not required. Pupils with the virus should not have their activities restricted, nor be excluded from school.

**Resources:** Useful information on HIV/AIDS can be found at <http://www.hpsc.ie/hpsc/A-Z/HIVSTIs/>



## Human Papilloma Virus (HPV)

There are over 100 viruses in the human papillomavirus (HPV) family. Most people will get a HPV infection during their lifetime. The spectrum of disease ranges from asymptomatic infection, common warts (verrucae), genital warts, to invasive cancer, depending on the virus type, the route of infection, and the body's immune response. Many HPV infections do not need treatment and resolve spontaneously. However, in some women certain HPV types cause changes in the cervix that can develop into cervical cancer.

Each year in Ireland around 250 women are diagnosed with cervical cancer and 80 die from the disease. At least 7 out of 10 of these cancers are linked to high risk HPV types 16 and 18.

**Precautions:** Girls in 1st year of second level schools are offered a course of vaccination with Gardasil® which protects against 4 types of HPV – the high risk types 16 and 18 that are associated with cervical cancer and the low risk types 6 and 11 which can cause genital warts.

**Exclusion:** None indicated

**Resources:** Useful information on HPV can be found at [www.hpv.ie](http://www.hpv.ie), [www.immunisation.ie/en/SchoolProgramme/HPV/](http://www.immunisation.ie/en/SchoolProgramme/HPV/), <http://www.hpsc.ie/hpsc/A-Z/Hepatitis/HPV/>

## Impetigo

Impetigo is a skin infection causing blisters, which become golden-crusts. It is mainly caused by bacteria known as staphylococci but may also be caused by streptococci. The fluid in the blister is very infectious, and spread occurs by hand-to-hand contact with this fluid as the blister bursts. Good hygiene is essential to prevent spread. Treatment is usually by antibiotic cream and/or oral antibiotic medicine.

**Precautions:** Hand washing is extremely important to stop the spread of impetigo. Any cuts, scrapes or scratches should be cleaned without delay and kept clean. Any medical conditions that involve broken skin, e.g. eczema, should be treated promptly to prevent the development of impetigo. Towels and face cloths should not be shared by pupils or staff. Staff should wash hands thoroughly after any contact with lesions e.g. after covering a pupil's lesion. People with impetigo must not handle food as the germ may also cause food poisoning. Environmental hygiene is also important (see Chapter 6).

**Exclusion:** Until lesions are crusted and healed, or 24 hours after commencing antibiotics. If after 24 hours of antibiotics lesions are not yet healed then they should be covered, e.g. with gauze and tape, until crusted and healed.

## Influenza and Influenza-like Illness (*Flu and ILI*)

Influenza is an acute infectious respiratory illness caused by the influenza virus. Influenza can occur throughout the year but usually peaks in winter. There are three main types of influenza with influenza A and influenza B causing the majority of human infections. Influenza viruses infect the nose, throat and lungs. They can cause mild to severe illness and, if severe, especially in vulnerable people such as the very young and the elderly can lead to death. The main symptoms are fever (temperature > 38°C (100.4°F), tiredness, chills, dry cough, sore throat, headache, muscle and joint pains. Sometimes it can be difficult to distinguish between influenza and the common cold.

Symptoms	Influenza	Common Cold
Onset	Sudden	Slow
Fever	High (≥38°C / 100°F)	Rare
Headache	Prominent	Rare
General aches & pains	Usual, often severe	Rare
Fatigue / Weakness	Can be prolonged	Mild
Extreme exhaustion	Early and prominent	Never
Runny nose	Common	Common
Sneezing	Common	Usual
Sore throat	Common	Common
Cough	Common, can be severe	Mild to moderate hacking cough
Diarrhoea / Vomiting	Sometimes	Not usual

Influenza is diagnosed by the laboratory using swabs from the nose and throat. Often the symptoms are so characteristic that a laboratory test is not necessary.

**Precautions:** The best way to prevent flu is by getting the flu vaccine each year. Pupils and teachers under 65 years of age do not need to be vaccinated unless they belong to a risk group for influenza. Risk groups include:

- those with certain underlying medical conditions (e.g. chronic respiratory disease, including cystic fibrosis, moderate or severe asthma, chronic heart disease, diabetes mellitus, chronic renal failure, chronic liver disease, Down Syndrome, chronic neurological disease including multiple sclerosis).
- those with an impaired immune system.
- persons with a body mass index (BMI) over 40.
- pregnant women.
- children with any condition that can compromise respiratory function (e.g. cognitive dysfunction, spinal cord injury, seizure disorder, or other neuromuscular disorder).
- Children with moderate to severe neurodevelopmental disorders such as cerebral palsy and intellectual disability.
- children on long-term aspirin therapy .

Further information on risk groups for the flu vaccine is available at <http://www.immunisation.ie/en/Downloads/NIACGuidelines>

Strict adherence to hand hygiene is essential to prevent spread. Environmental cleaning (see chapter 6) and respiratory etiquette (see Appendix 6) are also important.

Children under 18 with influenza should not be given aspirin or any aspirin containing products due to an association with Reyes syndrome, a very serious and potentially fatal condition.

If there is an outbreak of influenza in the school the local Department of Public Health should be informed who can provide advice on management of the outbreak.

**Exclusion:** Staff or pupils with influenza should remain at home for 5 days from when their symptoms began. In general persons with flu are infectious for 3-5 days after symptoms begin but this may be up to a week or more in children. Staff or pupils should not re-attend school until they are feeling better and their temperature has returned to normal. Contacts do not need to be excluded unless they develop symptoms of influenza.

**Resources:** Useful information on influenza can be found on the HPSC website at <http://www.hpsc.ie/hpsc/A-Z/Respiratory/Influenza/SeasonalInfluenza/> and the National Immunisation Office website <http://www.immunisation.ie/en/AdultImmunisation/FluVaccination/>

## Measles

Measles starts with what appears at first to be an ordinary cold, sore eyes, sneezing, coughing and a runny nose. These symptoms are accompanied by a fever. They are usually present for about four days before the rash appears and during this period the child is very infectious, so if measles is suspected it is wise to keep a pupil away from school. The rash proper breaks out 3-4 days after the onset of symptoms, as pink spots, which appear at first on the face and behind the ears and then spread over the body and limbs. In a day or two these spots merge into larger, raised, blotchy areas and their colour changes to a darker red. The temperature rises again with the rash and continues for several days before subsiding as the spots fade. This can be a very serious disease and may rarely be fatal. Complications such as meningitis or encephalitis can lead to brain damage and other complications can permanently damage the lungs.

**Precautions:** Pupils should be appropriately immunised with two doses of the MMR vaccine. Vaccine given to unvaccinated pupils within 72 hours of contact with a case may prevent or lessen the illness. If the case/cases are confirmed as being measles, your local Department of Public Health may recommend vaccination for pupils who have not received two doses of MMR vaccine. All staff working in schools should ensure they are protected against measles, either by vaccination or a history of measles infection. Vulnerable pupils and pregnant women who are not already immune but are in contact with a case should consult their GP or hospital consultant without delay to ensure appropriate management.

When a case of measles occurs in a school, the school should immediately inform their local Department of Public Health.

Frequent hand washing especially after contact with secretions from the nose or throat is important.

**Exclusion:** Exclude any staff member or pupil while infectious i.e. until 4 days after the rash appears. Generally cases will be too ill to attend school. Your local Department of Public Health may recommend additional actions, such as the temporary exclusion of unvaccinated siblings of a case or other unvaccinated pupils in the school who may be incubating measles.

**Resources:** Useful information on measles can be found at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/Measles/>.

## Meningitis and Meningococcal Disease

Meningitis is a serious illness involving inflammation of the membranes covering the brain and spinal cord. It can be caused by a variety of different germs, mainly bacteria and viruses. Bacterial meningitis is less common but usually more serious than viral meningitis and needs urgent treatment with antibiotics. Bacterial meningitis may be accompanied by septicaemia (blood poisoning). The bacteria, which may cause meningitis or septicaemia (blood poisoning), include meningococcus, pneumococcus, and *Haemophilus influenzae*. Meningitis or septicaemia caused by the meningococcus bacteria is often called meningococcal disease. The bacteria live naturally in the nose and throat of normal healthy persons without causing illness. Spread is by droplets from the nose and mouth. The illness occurs most frequently in young children and adolescents, usually as isolated cases. Bacterial meningitis or septicaemia requires urgent antibiotic treatment. Antibiotics do not help viral meningitis.

The signs and symptoms may include severe headaches, fever, vomiting, drowsiness, discomfort from bright light, and neck stiffness. Meningococcal disease may be accompanied by a non-blanching rash of small red-purple spots or bruises. Children with bacterial meningitis or blood poisoning usually become very unwell very quickly. It is essential that if meningitis or blood poisoning is suspected medical help is sought urgently, as prompt treatment can be lifesaving.

**Precautions:** Any ill pupil with fever, headache and vomiting should be sent home as soon as their parent can be contacted and referred to their doctor. If there is a delay in contacting a parent it may be necessary to bring the pupil to the hospital Emergency Department. If a pupil is seriously ill an ambulance should be called first and then parent(s) should be contacted.

At present a vaccine is available as part of the routine childhood immunisation schedule for some strains of meningococcal and pneumococcal disease as well as for *Haemophilus influenzae* type b (Hib).

When a case of meningitis occurs in a school, the school should immediately inform their Department of Public Health. The public health doctors will provide an explanatory letter and leaflet for parents and staff if appropriate. Contacts of a case of bacterial meningitis or septicaemia in a school do not usually require antibiotics. Public health doctors will undertake a thorough risk assessment and identify all close contacts that require preventative antibiotics.

**Exclusion:** Cases of meningitis will be too ill to attend the school. Contacts do not need to be excluded.

**Resources:** Useful information on meningitis can be found at <http://www.hpsc.ie/hpsc/A-Z/Respiratory/Meningitis/>

## Molluscum Contagiosum

*Molluscum contagiosum* is a viral disease that causes small flat circular lesions, which may be flesh coloured, white, translucent or yellow. Lesions will heal with time. This may take 6–24 months.

**Precautions:** Hand washing is important. Avoiding direct contact with lesions and covering lesions during communal activities at school can also prevent spread. Towels should not be shared.

**Exclusion:** Not necessary.

## Mumps

Mumps causes fever and swelling of the salivary glands, particularly just in front of and below the ear. It may affect other organs such as the testes. Mumps can be spread by droplets from the nose and throat and by saliva. Prevention is by encouraging parents to ensure their children are vaccinated.

**Precautions:** Pupils should be appropriately immunised with two doses of the MMR vaccine. If a case occurs contact should be made with your local Department of Public Health who may advise contacting parents of pupils in the same class as the case to recommend vaccination of pupils who have not received two doses of the MMR vaccine. If there is evidence of spread of mumps within the school your local Department of Public Health may recommend more widespread action. All staff working in schools should ensure they are protected against mumps, either by vaccination or a history of mumps infection.

Frequent hand washing especially after contact with secretions from the nose or throat is important.

**Exclusion:** The case (staff or pupil) should be excluded for 5 days after the onset of swelling.

**Resources:** Useful information on mumps can be found at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/Mumps/>.

## MRSA (*Methicillin-resistant Staphylococcus aureus*)

*Staphylococcus aureus* is a type of bacteria that is often found on the skin and in the nose of healthy people (about one in three people). Most people who carry staphylococcus on their skin or in their nose do not suffer any ill effects and are described as being “colonised”.

**Methicillin resistant *Staphylococcus aureus* (MRSA)** is a specific type of staphylococcus that no longer responds to many commonly used antibiotics such as penicillin. Occasionally these bacteria cause infections (e.g. impetigo, boils, abscesses or infected wounds) if they enter the body through a break in the skin due to a cut, sore or surgical incision. This is most likely to occur in people who are already ill but may also occur among healthy people living in the community. A few people may develop more serious infections such as septicaemia (bloodstream infection or blood poisoning); especially people who are already ill in hospital or who have long term health problems.

Staphylococci (including MRSA) are usually spread from person to person on unwashed hands, particularly after having direct contact with a draining wound (e.g. cut or sore). It can also be spread by touching items used by an infected person e.g. soiled dressings.

### Precautions:

- **Hand washing is the most effective way to prevent spread.**
- Keep cuts, scrapes and wounds clean and covered until healed.
- Do not share personal items e.g. towels, facecloths, flannels, and clothes.
- If a dressing needs to be changed in the school, gloves should be worn by the care giver and hands should be washed before and after changing the dressing.
- Discard soiled items (e.g. dressings) in a sealed plastic bag before placing in a domestic waste bin.

**Exclusion:** Staff or pupils known to carry *Staphylococcus aureus* (including MRSA) on the skin or in the nose do not need to be excluded from school. Staff or pupils who have draining wounds or skin sores producing pus will only need to be excluded from school if the wounds cannot be covered or contained by a dressing and/or the dressing cannot be kept dry and intact.

**Resources:** Useful information on MRSA can be found at <http://www.hpsc.ie/hpsc/A-Z/Microbiology/AntimicrobialResistance/europeanAntimicrobialResistanceSurveillanceSystemEARSS/ReferenceandEducationalResourceMaterial/SaureusMRSA/>

## Pharyngitis/Tonsillitis

This means a sore throat. Usually it is caused by a viral infection, for which antibiotics are not effective. Occasionally it can be caused by a bacterium called streptococcus (“strep throat”).

**Precautions:** Frequent hand washing especially after contact with secretions from the nose or throat is important.

**Exclusion:** If the disease is known to be caused by a streptococcal (bacterial) infection the pupil or member of staff should be kept away from school until 24 hours after the start of treatment with antibiotics and while they feel unwell. Otherwise a pupil or member of staff should stay at home while they feel unwell.

## Pneumococcus

This is a bacterial disease spread by close contact with an infected person or carrier and causes pneumonia, meningitis or septicaemia (blood poisoning), and middle ear infections. A pneumococcal vaccine, which protects against some strains of pneumococcus, is available as part of a child's primary vaccination schedule.

**Precautions:** Pupils should be appropriately immunised. Frequent hand washing especially after contact with secretions from the nose or throat is important.

**Exclusions:** Staff or pupils with the disease will be too ill to attend school. Contacts do not need to be excluded.

**Resources:** Useful information on pneumococcal disease can be found at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/PneumococcalDisease/>.

## Polio

Polio is a viral illness that affects the nervous system and can cause paralysis. It has not been seen in Ireland for many decades because of the effectiveness of the polio vaccine.

**Precautions:** Pupils should be appropriately immunised.

**Exclusions:** Very specific exclusion criteria apply and will be advised on by the Department of Public Health.

**Resources:** Useful information on polio can be found at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/Polio/>.

## Respiratory Syncytial Virus

Respiratory syncytial virus (RSV) is a common cause of respiratory disease in children and can cause severe disease in children under 2 years of age. The clinical features include fever, runny nose, sore throat, cough and sometimes croup (inflammation of the upper airways with a barking cough) and wheezing. Ear infections are common with RSV. However, the most serious complication is infection deep in the lungs (pneumonitis and pneumonia). Children can catch RSV on repeated occasions. Coughing and sneezing are the main ways in which it is spread, but the virus can be transmitted by toys and eating utensils contaminated by nasal discharge and mucus from infectious children. Antibiotics are not effective against RSV as it is a virus.

**Precautions:** Strict attention to hand washing is the best protection against RSV. In addition, pupils with RSV should not share utensils such as cups or clothing (including towels). Environmental cleaning (see chapter 6) and respiratory etiquette (see Appendix 6) are also important.

**Exclusion:** Pupils with RSV should be excluded until they have no symptoms and their temperature has returned to normal. Contacts do not need to be excluded.

**Resources:** Useful information on RSV is available at <http://www.hpsc.ie/hpsc/A-Z/Respiratory/RespiratorySyncytialVirus/Factsheet>.

## Ringworm (*Tinea*)

Ringworm or tinea is caused by a fungal infection. It is most common between the toes (athlete's foot) where the skin becomes white and soft, with sore red skin underneath. On the body it causes a circular rash, which spreads outwards whilst healing in the centre. On the scalp it usually causes hair loss or scaling. It can be spread directly from skin to skin, or indirectly via showers, changing rooms, barbers' clippers, hair brushes/combs, or clothing. It is infectious for as long as the infection is present. Treatment is usually by antifungal cream applied to the affected area.

**Precautions:** Early treatment of affected pupils or staff is indicated. Sharing of ribbons, combs and hairbrushes should be avoided. Spread can be prevented by good personal hygiene, regular hand washing, and use of separate towels and toilet articles. The infection can also be prevented by educating pupils to wash feet regularly, dry between the toes thoroughly, and wear cotton socks. Environmental cleaning, particularly of swimming pools and shower or changing rooms, is important (see chapter 6). Pets (e.g. cats and dogs) should be checked for infection as they may be the source.

**Exclusion:** Parents should be encouraged to seek treatment. Pupils need not be excluded from school once they commence treatment.

## Rubella (*German measles*)

Rubella is a mild illness with a faint rash, which resolves quickly. Usually the rash is the first indication of illness, although there may be mild catarrh, headache or vomiting at the start. The rash takes the form of small pink spots all over the body. There may be a slight fever and some tenderness in the neck, armpits or groin and there may be joint pains. The rash lasts for only one or two days and the spots remain distinct.

Rubella occurring in a woman in the early months of pregnancy may cause congenital defects in the unborn child.

Transmission is by droplets from the mouth and nose or direct contact with cases. Patients are infectious for up to a week before and at least 4 days after the onset of the rash.

**Precautions:** Pupils should be appropriately immunised with two doses of the MMR vaccine. All female staff working in schools should ensure that they are protected against rubella, either by having received the rubella or MMR vaccine or having had a blood test to confirm immunity. Pregnant women who are not immune and are in contact with a case should consult their GP or obstetrician promptly for advice.

Frequent hand washing especially after contact with secretions from the nose or throat is important to reduce spread of infection.

**Exclusion:** For 7 days after onset of the rash, and whilst unwell.

**Resources:** Useful information on rubella can be found at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/Rubella/>.

## Scabies

This is an extremely itchy rash due to an allergic reaction to infection with a microscopic mite (*Sarcoptes scabiei*), which burrows under the skin. By the time itching is obvious mites will usually have been present for some weeks. The rash comprises small red papules which can be found anywhere on the body. Burrows, which are caused directly by the mite, may be seen in the webs of the fingers, and on wrists and elbows. Scabies is only transmitted by very close and prolonged contact. Generally the affected pupil and his/her family will need treatment, regardless of symptoms, with lotion applied to the whole body.

**Precautions:** Prevention depends on prompt treatment to prevent spread.

**Exclusion:** Not necessary once treatment has commenced.

**Resources:** Useful information on scabies can be found at <http://www.hpsc.ie/hpsc/A-Z/Other/Scabies/>



## Scarlet Fever (*Scarlatina*)

Scarlet fever is caused by certain strains of streptococcus bacteria. These bacteria are common (most people will have them at some time in their lives) and cause a number of other diseases including sore throat ("strep throat") and skin infections.

**Precautions:** Frequent hand washing especially after contact with secretions from the nose or throat is important to reduce spread of infection.

**Exclusion:** Once a patient has been on antibiotic treatment for 24 hours they can return to school provided they feel well enough.

**Resources:** Useful information on streptococcal disease can be found at <http://www.hpsc.ie/hpsc/A-Z/Other/GroupAStreptococcalDiseaseGAS/>.

## Slapped Cheek Syndrome (*Fifth disease - Parvovirus B19*)

Slapped cheek syndrome is caused by an infection with a virus known as human parvovirus B19. It is usually a mild self-limiting disease, occurring in small outbreaks among children, particularly in winter and spring. Small outbreaks are common in schools and usually reflect increased circulation of the virus in the wider community. A red rash appears on the face giving a 'slapped cheek' appearance and may also involve the legs and trunk. Often the child may have a runny nose and cough. Some people, mainly adults, can develop mild joint pains. There is no specific treatment.

Cases are infectious for approximately 7 days before the rash appears and are usually no longer infectious when the rash has appeared. Anyone who is not immune can be infected, but the disease seems to occur more often in the 5 to 14 year age group. By the age of 20 to 25 years, more than half of all adults have been infected and have developed life-long immunity. Infection is spread by respiratory secretions (e.g. saliva, sputum, nasal mucus) through sneezing, coughing or direct contact with these secretions.

In people with chronic red blood cell disorders (e.g. sickle-cell disease or spherocytosis) or whose immune system is significantly weakened, infection may result in severe anaemia requiring treatment.

Most pregnant women, especially women who work with children, are already immune to parvovirus and therefore do not become infected. For women who are not immune a small number may become infected. Infection is more likely after contact with an infectious person in a household setting rather than an occupational (school) setting. For the small number of women who develop infection, the infection may pass to the foetus. In most instances infection in the foetus does not lead to any adverse effects. In a very small number of cases infection in the foetus before the pregnancy has reached 21 weeks may cause anaemia which may need treatment. There is also a rare association between infection in the foetus in early pregnancy and miscarriage.

**Precautions:** Preventive measures include strict hand washing especially after contact with respiratory secretions (e.g. saliva, sputum, nasal mucus). People, especially pregnant women or those with chronic red blood cell disorders or impaired immunity, with sick children at home should wash hands frequently and avoid sharing eating/drinking utensils.

Pregnant women, those with chronic red blood cell disorders (e.g. sickle cell disease) and those with impaired immunity should seek medical advice if they believe they have been in contact with a case either at home, in the community or at work.

**Exclusion:** An affected staff member or pupil need not be excluded because he/she is no longer infectious by the time the rash occurs. Circulation of parvovirus in schools

reflects circulation of the infection in the wider community. In addition by the time someone develops the typical rash of slapped cheek syndrome they are usually no longer infectious and their contacts have already been exposed. Excluding pregnant teachers from school will not prevent them from being exposed to infection and therefore exclusion is not recommended as a public health measure to protect pregnant women from infection.

**Resources:** Useful information on slapped cheek syndrome can be found at <http://www.hpsc.ie/hpsc/A-Z/Other/Parvovirus/>

## Tetanus (*Lockjaw*)

Tetanus ('lock-jaw') is a disease that causes painful muscle spasm, convulsions and difficulty in breathing. It is often fatal. The bacteria that cause tetanus are commonly found in the soil.

**Precautions:** Pupils should be appropriately immunised.

**Exclusion:** Individuals with the disease will be too ill to attend school. Contacts do not need to be excluded.

**Resources:** Useful information on tetanus can be found at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/Tetanus/>.

## Tuberculosis (TB)

TB is much less common in this country than previously. However, in 2011 there were over 400 new TB cases notified in Ireland. The bacteria may infect any part of the body but most commonly infect the lungs and lymph glands. Symptoms of TB classically include a persistent cough of at least three weeks duration, night sweats, loss of appetite and weight loss.

Most cases of TB are not infectious. In those that are, the TB may be spread when that person coughs and someone else in close contact breathes in the TB germ. Spread of the contagious form of TB is most common in indoor environments, among close contacts such as in the home or residential institutions. Appropriate antibiotic treatment makes the case non-infectious quickly.

If a TB case occurs in a member of staff or pupil attending a school you should contact your local Department of Public Health. Public health doctors will undertake a detailed risk assessment and offer screening to anyone identified as a close contact. Screening consists of a health questionnaire and a skin test if indicated. Some close contacts may require a blood test or a chest X-ray. Screening in a school is generally carried out to find out if any others have become infected. Treatment and follow-up will be offered to anyone who requires it.

**Precautions:** Transmission from young children to adults is extremely rare but adults may infect children. Staff members should be encouraged to report symptoms of TB should they occur and staff with prolonged cough (more than 3 weeks) should be advised to see their GP.

**Exclusion:** Recommendations on exclusion depend on the particulars of each case, e.g. whether the case is 'infectious' or not. The Department of Public Health will advise on each individual case.

**Resources:** Useful information on TB can be found at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/TuberculosisTB/>.

## Typhoid and Paratyphoid

These diseases are uncommon in Ireland and require specific action by the Department of Public Health in each case.

**Exclusion:** Very specific exclusion criteria apply; your local Department of Public Health will advise.

**Resources:** Useful information on typhoid/paratyphoid can be found at <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/Typhoid/>.

## Verrucae (*Plantar warts*)

These are warts on the sole of the foot and cause discomfort mainly due to their location on the weight-bearing surface. They can be spread by direct contact. They may benefit from medical treatment such as application of medications or freezing. Warts are common, and most people will acquire them at some time in their lives. There is little benefit in covering them for swimming and physical education.

**Precautions:** Environmental cleaning, particularly of swimming pools and shower or changing rooms, is important (see Chapter 6). Pupils should not share towels, shoes or socks with someone who has a verruca. Pupils or staff with verrucae should wear pool shoes or flip-flops in changing rooms and showers.

**Exclusion:** Not necessary.

## Viral meningitis

Meningitis is inflammation of the membranes covering the brain and spinal cord. It can be caused by a variety of different germs, mainly bacteria and viruses. Bacterial meningitis is less common but usually more serious than viral meningitis and needs urgent treatment with antibiotics. Viral meningitis is less serious and does not require antibiotic treatment. The symptoms are similar to bacterial meningitis so hospital tests may be needed to tell the difference between bacterial and viral meningitis.

**Precautions:** Although the risk of acquiring viral meningitis is small it is sensible to take precautions. The most important protection against the viruses that cause viral meningitis is hand washing. Frequent hand washing especially after contact with secretions from the nose or throat is important.

**Exclusions:** Staff or pupils with the disease will usually be too ill to attend school. Contacts do not need to be excluded.

**Resources:** Useful information on viral meningitis can be found at <http://www.hpsc.ie/hpsc/A-Z/Respiratory/ViralMeningitis/Factsheet/>

## Whooping Cough (*Pertussis*)

The early stages of whooping cough, which may last a week or so, can be very like a heavy cold with a temperature and persistent cough. The cough becomes worse and the characteristic 'whoop' may develop. Coughing spasms are frequently worse at night and may be associated with vomiting. This infection can cause serious complications especially in very young children. Long-term lung damage may occur. The illness may last several months. It spreads easily, particularly in the early stages while the illness is still mild. Antibiotics may make the infection less severe if it is started early, before coughing fits begin. Antibiotics may also help prevent spreading the disease to others.

**Precautions:** Pupils should be appropriately immunised, which includes a booster dose at age 4-5 years and a second low-dose booster at age 11-14 years.

Immunity from vaccination is not life lasting and therefore adults who wish to reduce the risk of infection to themselves and children in their care may get a booster vaccine (Tdap) from their GP.

Pregnant women are recommended to have a booster pertussis vaccine during every pregnancy. The best time to give the vaccine is between 27-36 weeks of the pregnancy. All pregnant women should discuss pertussis vaccination with their GP or Obstetrician.

Frequent hand washing especially after contact with secretions from the nose or throat is important to reduce spread of infection.

**Exclusion:** Staff or pupils who develop pertussis should stay at home until they have had 5 days of appropriate antibiotic treatment or for 21 days from onset of illness if no antibiotic treatment.

**Resources:** Useful information on whooping cough can be found at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/PertussisWhoopingCough/>.

## Worms

In Ireland this almost always refers to threadworms, a common infection of the bowel with a tiny worm. It is not serious or dangerous but causes itching around the bottom, where the eggs are laid. Because of this itching the affected child will scratch his/her bottom, picking up the eggs under the fingernails and pass them on to the next person (or re-infecting himself/herself) usually via food. Treatment is by medication, which may be bought via the chemist or obtained via the doctor - all members of the family require treatment. A shower (rather than a bath) in the morning will remove any eggs laid around the bottom during the night.

**Precautions:** Prevention is by strict attention to personal hygiene. Washing hands before eating and after going to the toilet is essential with supervision by an adult if necessary.

**Exclusion:** Not necessary