

*Management of Infectious
Disease in Schools*

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This document builds on important, previously published guidance.

1. Infection in School: A Manual for School Personnel (most recent edition 2005).

The original document was compiled by Prof Karina Butler, Consultant in Paediatric Infectious Disease, Our Lady's Hospital for Sick Children, and published by the Health Promotion Unit of the Department of Health in 1995. It was subsequently updated in 2005 with the assistance of the Infectious Diseases Group, Department of Public Health, South Eastern Health Board.

2. Management of Infectious Disease in Childcare Facilities and Other Childcare Settings (<http://www.hpsc.ie/hpsc/A-Z/LifeStages/Childcare/>)

This document was published in 2012 by the Scientific Advisory Committee of the Health Protection Surveillance Centre. We wish to thank the Scientific Advisory Committee for permission to adapt much of their material to make it relevant in the education setting.

Foreword

Infectious diseases are a major cause of illness among school going children.

Hand washing is the single most important part of infection control. Hence the importance of adequate hand washing facilities in all schools.

Teaching children the skills of hand washing and cough etiquette is essential in breaking the chain of infection, regardless of the cause.

Appropriate vaccination of children, in line with the National Immunisation Guidelines, has resulted in fewer childhood illnesses. Schools are to be complimented for facilitating the Schools Immunisation Programme.

Appropriate control measures in schools will minimise transmission both within the school, but also to the wider community.

I would like to acknowledge the hard work of the Public Health Medicine Communicable Disease Sub-Group in producing this document. I am confident that it will be of great assistance to school personnel as they continue to play their role in controlling infectious diseases.

From time to time, there will be additions and links to other resources that relate to the management of infectious diseases in schools. This material will be made available on the Health Protection Surveillance Centre (HPSC) website at <http://www.hpsc.ie>

It is planned to formally review this document in 2016.

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Chapter 1. Introduction

These guidelines were designed to assist schools to prevent or minimise the spread of infection, illness and disease to staff, pupils and others (such as student teachers and volunteers). They were primarily developed for use by teachers in primary and secondary schools.

They aim to raise awareness about common and important infectious diseases and provide guidance on the prevention and management of infectious diseases in educational settings.

The guidelines are based on best available evidence and consensus recommendations.

Additional advice and support about specific infectious diseases can be obtained from Local Departments of Public Health

The document provides advice on the prevention and control of the most common and important infections encountered in schools.

Key points

Schools are common sites for transmission of infectious diseases.

The prevention of transmission of infectious diseases in schools is most likely to be successful if the following are implemented:

1. Effective hand washing is used at every opportunity.
2. All pupils and staff are appropriately immunised.
3. Any unwell staff member or pupil is excluded from school.

Chapter 2: Infection

Infection in schools

Infections in school children are common. Schools are ideal places for the spread of infectious diseases because of the large numbers of young people of different ages in close contact with each other some of whom may not have developed good personal habits or immunity to various diseases. Understanding the way different infectious diseases spread allows the correct preventive measures to be applied.

What is infection?

Micro-organisms, also known as germs, are tiny living organisms that cannot be seen by the naked eye. Germs can be found in many different places, some live in the environment, some in animals and others in humans. These germs fulfil many important functions and their presence in the human body is necessary for health. Some germs however, can cause infection. Infection develops when germs which do not usually inhabit the human body gain access, multiply and invade human tissue resulting in signs and symptoms of infection (e.g. redness, heat, swelling, fever).

Several types of germs cause infection including; bacteria, viruses, fungi, protozoa and parasites. Infectious diseases caused by bacteria include scarlet fever and meningitis. Viruses, which are much smaller than bacteria, cause diseases such as measles, mumps, rubella (German measles), chicken pox and HIV. Fungal infections include ringworm and athlete's foot and parasites include head lice and scabies.

Not all infectious diseases are contagious. Ear infections are caused by germs that are not usually passed from person to person. Chicken pox on the other hand rapidly spreads from person to person and is an example of a highly contagious infectious disease.

Who is at risk of infection?

Everyone is susceptible to infection. Once a person comes in contact with an infectious agent or germ, a number of factors influence whether or not that person becomes ill. These include; the germ itself, the number of germs required to cause infection (i.e. infectious dose) and how efficient a particular germ is at causing disease. Other factors depend on us; how strong is our immune system, have we met that germ before, are we resistant to it? Some infections result in lifelong immunity which is why most of us will only develop chicken pox or measles once in our lives, while other infections like the common cold can be caught again and again.

How do infections spread?

Infections can spread in a variety of ways: the five most common routes are:

1. Through the gastrointestinal tract, (intestines and faeces) e.g. infectious diarrhoea and hepatitis A.
2. Through the respiratory tract, (eyes, nose, mouth and lung secretions) e.g. colds and influenza.
3. Through direct contact, (skin contact, contact with saliva and other body fluids, sexual contact), e.g. bacterial skin infections such as impetigo, molluscum contagiosum, scabies, and through indirect contact with surfaces or materials such as pencils, handkerchiefs, soiled clothing and crockery and cutlery which have been contaminated by germs, e.g. influenza and the common cold.
4. Through contact with infected blood e.g. hepatitis B, hepatitis C and HIV/AIDS.
5. Through ingestion of contaminated food or water e.g. food poisoning.

Many germs can be spread even before a person develops signs of infection. The interval between contact with infection and the time symptoms develop is called the incubation period. People are often infectious during the latter part of the incubation period. For example children with measles are infectious for about 3 days before the appearance of a rash.

Furthermore, some germs can happily live in the nose and throats of people who never develop symptoms of infection, yet they can pass it to another person. These people are referred to as 'carriers'.

Spread through the gastrointestinal tract or gut

Some diseases are caused by germs which live and multiply in the intestines or gut and are passed out of the body in the faeces. For disease to spread, faeces containing these germs must be carried to the mouth and swallowed. Disease can spread when even very small amounts of faeces, amounts so small that they cannot be seen by the naked eye, contaminate hands or objects and are unknowingly brought to the mouth and swallowed. This is also known as the **faecal-oral (faeces to mouth) route of transmission** and usually occurs when hands are contaminated after using the toilet. Hands can also contaminate objects such as pencils and door-handles which are then handled, allowing the germs to pass to the next pair of hands and ultimately to the mouth of the next person, and so the infectious chain continues.

Gastrointestinal spread is responsible for the spread of most infectious diarrhoea as well as some more generalised infections such as hepatitis A. Worm infestation is also spread in this way. Anyone can catch these infections and many of them e.g. infectious diarrhoea and thread worms, can be caught again and again.

Spread through the respiratory tract

Some infectious diseases are spread by germs that can live and multiply in the eyes, airways (including the nose and mouth), and the lungs. These germs are easily passed from our nose or mouth to our hands and from there to other objects. This could be another hand, or it could be an item such as a pen or pencil. Some infections are spread by droplets that are expelled by an infected person when they sneeze, cough or talk. Droplet spread usually requires the infected person and the susceptible contact to be relatively close to one another, within about 3 feet. Examples include; common cold, influenza, meningococcal disease, mumps, rubella and pertussis (whooping cough). Other infections are spread by small aerosol droplets that remain in the air where they are carried on air currents (airborne spread) for some time after they are expelled e.g. measles, chickenpox and tuberculosis.

Direct contact

A number of infections and infestations (an infestation is when a person is infected with a parasite e.g. head lice or worms) require direct contact for transmission to occur. Some infections require only superficial contact with an infected site for infection to spread e.g. conjunctivitis (pink eye), impetigo (a bacterial skin infection), ringworm, and scabies. With others, infection is only passed if there is either direct contact with the infected site or with contaminated objects. Other infections require more intimate or prolonged contact for transmission.

Infections caused by viruses such as glandular fever (also called infectious mono, or mono, is caused by the Epstein Barr virus or EBV), cold sores (caused by the herpes simplex virus or HSV) and cytomegalovirus infection (CMV), can be spread by contact with body secretions such as saliva (EBV, HSV, CMV) and urine (CMV), or by contact with the actual lesions (HSV). All of these infections, as well as many others can also be transmitted by sexual contact.

Blood Contact

Hepatitis B, hepatitis C and HIV/AIDS are three important viral infections that are spread through contact with blood.

Infection with these blood borne viruses (BBVs) can occur if blood from an infected person gets into the bloodstream of an uninfected person. This usually requires a breach in the skin or mucous membranes (the mucous membranes are the delicate linings of the body orifices; the nose, mouth, rectum and vagina). Intact skin provides an effective barrier to these germs and infection following contact with intact skin is extremely unlikely. However, infection can occur if the skin is broken, if someone has open cuts, or if the infected blood is carried through the skin e. g. on a needle or sharp instrument.

It is also possible for infection to occur through sexual intercourse with an infected person. Infection can also be passed from mother-to-infant during pregnancy or at the time of delivery.

The potentially serious consequence of acquiring these diseases means that all blood and body fluids must be treated as potentially infectious. This is particularly important because clinical illness is not always obvious in infected individuals. Indeed most infected individuals, pupils and staff, may not even be aware that they are carriers of these viruses. School staff should therefore assume that all blood is infectious, regardless of its source. Basic good hygiene precautions should be applied on a routine basis, rather than relying on the identification of infectious pupils or staff. This is the only way to guarantee a safe environment for staff and pupils.

Spread through food or water

Food-poisoning is an illness that occurs when food or water which is contaminated by germs, or by toxic substances produced by germs, is eaten or drunk. Food which has become contaminated can then act as a vehicle to pass the germs to other people. Similarly, water that is contaminated can also act as a vehicle to pass germs to other people. Public water supplies are generally treated to prevent spread of germs. Untreated or inadequately treated water can spread water borne illness. Schools whose water supply is from a well or a small private group water scheme should ensure that the water quality is adequate for drinking purposes, food preparation etc. Further information is available in Appendix 1.

Chapter 3: Prevention and Control of Infection

Background

The purpose of these guidelines is to prevent and control the spread of infection. In order to do that, school staff must have a basic knowledge of common infections; know what the signs and symptoms are, and understand how infection spreads (Chapter 2). Within the school system sound infection control policies are rooted in the development of good standards of hygiene. Implementing these standards is the most effective way to interrupt the spread of infections commonly encountered in schools. The spread of infection in schools can be reduced by:

1. Immunisation of susceptible people

Immunisation of pupils and staff (Chapter 4). If all potential targets for infection were made resistant by immunisation then the infectious chain would be broken. This approach has been successfully adopted for many of the infections that were previously common childhood, e.g. polio and diphtheria.

2. Exclusion of the infectious source

Many infectious diseases are most transmissible as or just before symptoms develop. It is important therefore that pupils and staff who are ill when they come to school, or who develop symptoms during the school day, should be sent home. Whenever possible, ill pupils should be removed from the classroom while waiting to go home. Obvious symptoms of illness are diarrhoea, vomiting, fever, cough, sore throat and rash.

For most illnesses, pupils and staff may return to school once they feel well enough to do so. In some instances however, it may be necessary to exclude pupils and staff from school for specified periods to prevent the spread of infection. Pupils and staff with gastrointestinal illness (i.e. diarrhoea and/ or vomiting) for example, are advised to stay at home until they are symptom free for at least 48 hours. In certain circumstances additional exclusions may be necessary, e.g. in a case of measles the local Department of Public Health may recommend temporary exclusion of unvaccinated siblings of a case or other unvaccinated pupils. The full list of exclusion criteria is outlined in Chapter 9.

3. Implementation of Standard Precautions and basic good hygiene practices

Placing reliance on the identification of all potentially infectious individuals and their exclusion from schools will not effectively control the spread of infection in schools, which is why standard precautions and good hygiene practices are also recommended. Standard precautions are work practices that were designed based on the assumption that all blood and all body fluids are potentially infectious. These precautions are recommended to prevent disease transmission in schools and should be adopted for contact with all blood and body fluids. The precautions include:

- Good hygiene practices, including hand hygiene.
- Appropriate use of barriers such as personal protective clothing (PPE) e.g. gloves, aprons.
- Environmental hygiene (including management of body fluid spillages).
- Appropriate disposal of waste and sharps.

Hand washing

Hand washing is the single most effective way to prevent the spread of infection; its purpose is to remove or destroy germs that are picked up on the hands. Germs can be picked up in lots of ways including when we touch other people, animals, contaminated surfaces, food and body fluids. These germs can then enter our body and make us ill or they can be passed to other people or to the things that we touch. Germs picked up on the hands can be effectively removed by thorough hand washing with soap and running water. Hand washing protects pupils and staff.

Many infections are spread by the faecal-oral route due to inadequate hand washing after using the toilet or before preparing, handling or eating food.

Pupils of all ages should be encouraged to wash their hands and school staff should avail of every opportunity to emphasise the importance of clean hands to pupils in the prevention of the spread of infection. School staff should 'lead by example'.

Hand washing facilities

Good toilet and hand washing facilities are important for infection control.

- Hand washing facilities should be provided and should be adequate to meet the needs of the school population.
- Wash hand basins, warm running water, liquid soap dispensers and hand drying facilities should be provided in all toilets, kitchens and other food preparation areas.
- Foot operated pedal bins should be located near wash basins for disposing of paper towels.
- Hand washing facilities should be maintained in a good condition and supplies of paper towels and soap should be topped up regularly to encourage pupils to use them. Cleaning staff should be reminded to check the soap dispensers at frequent intervals.
- Wash hand basins should be at an appropriate height for staff and pupils of all ages.

When to wash hands

Before

- Handling or preparing food
- Lunch and meal breaks
- Providing first aid or medication

After

- Providing first aid or medication
- Touching blood or body fluids
- Using the toilet
- Coughing, sneezing or wiping ones nose
- Touching animals
- Removing protective gloves

See Appendix 2, 3, 4 and 5 for posters on hand washing

Hand washing products

- Liquid soap and warm running water should be provided.
- A mild unscented liquid soap is preferred especially for staff and pupils with sensitive skin. Antibacterial soap **is not recommended or necessary**.
- Disposable cartridges of liquid soap that are wall mounted are the "gold standard". Bar soap is not recommended as the soap can easily become contaminated with bacteria.
- If the liquid soap container is refillable, the container and pump should be emptied, cleaned, and dried completely before being refilled.
- Soap and water must be used if hands are visibly soiled.

Water temperature

- Ideally, wash hand basins should have hot and cold mixer taps that are thermostatically controlled to deliver hot water at a maximum temperature of 43°C to avoid scalding.
- Warm water is preferable to hot or cold water because it is kinder to skin and soaps emulsify more readily in warm water. If the plumbing system only supplies cold water, a soap that emulsifies easily in cold water should be provided.

How to wash hands

- Wet hands under warm running water to wrist level.
- Apply liquid soap. Lather it evenly covering all areas of the hands for at least 10 seconds. Include the thumbs, finger tips, palms and in between the fingers, rubbing backwards and forwards at every stroke (see Posters on hand washing technique in the Appendices).

- Rinse hands off thoroughly under warm running water.
- Dry with paper towel using a patting motion to reduce friction, taking special care to dry between the fingers.
- Use the disposable paper towel that has been used to dry the hands to turn off taps.
- Dispose of the disposable paper towel in a waste bin using the foot pedal to avoid contaminating hands that have just been washed.

Drying

- Good quality disposable paper towels (preferably wall mounted) should be available at or near the wash hand basins for drying hands.
- Hot air hand dryers are an acceptable alternative although they are often not used properly; either because the machines are not very efficient (too slow, wrong height) or there are not enough dryers for the numbers requiring them, especially at break times. If hand dryers are provided they must be regularly maintained.
- If roller type cloth towels are used, school staff must ensure that they are maintained properly and replenished regularly so that contaminated portions of towels are not re-used.
- Posters displaying hand washing technique and promoting hand-washing could be placed on the wall adjacent to washing facilities (these can be downloaded free from www.hpsc.ie and laminated or placed in a plastic sleeve).

Alcohol based hand rubs/gels

Alcohol based hand rubs/gels are not a substitute for hand washing with soap and running water and are not generally recommended for routine use in educational settings because of concerns over safety, and the fact that the rubs/gels are not effective when used on hands that are visibly dirty (a common feature among school children).

Alcohol-based hand rubs and gels are a good alternative when soap and running water are not available, (e.g. on a field trip or excursion) as long as hands are not visibly dirty. If hands are visibly dirty, liquid soap and water must be used.

Method

- Apply the required volume of the product to the palm of one hand and rub the hands together. The amount of gel used should be enough to keep the hands wet for at least 15 seconds.
- Ensure all surfaces of the hands and fingers are covered with the gel and keep rubbing until the hands are dry.
- The alcohol content of the product generally evaporates in 15 seconds so after the alcohol evaporates it is safe to touch the mouth or eyes.

Health and Safety

As with any other household product or chemical, alcohol hand rubs can be hazardous if used inappropriately. Alcohol hand rubs are flammable and can be toxic if ingested.

If alcohol hand rubs/gels are used in the school setting, care should be taken to ensure that children do not accidentally ingest hand washing products. Young children should not have independent use of containers of alcohol gel.

Hand washing and young children

Good hand washing habits should be taught to young pupils as early as possible. This can be done by:

- Showing children a good hand washing technique (See posters on hand washing in Appendices).
- Supervising and assisting young pupils to wash their hands.
- Always leading by good example.

Protective Clothing

Basic protective clothing (i.e. gloves) is required for situations where contact with blood or body fluids is likely and a barrier is needed to prevent a person with open cuts, sores or cracked (non-intact) skin and their eyes, nose or mouth (mucous membranes) from having contact with another person's blood or body fluids. This includes dealing with non intact (broken) skin.

Gloves

Disposable gloves should be worn when dealing with blood, body fluids, broken or grazed skin, and contact with mucous membranes (e.g. eyes, nose and mouth).

Medical/examination gloves

- Disposable, powder free gloves made of either natural rubber latex or nitrile are suitable for use in these circumstances as they have good barrier properties.
- Latex free gloves should be available for staff or children who have latex allergy.

- Gloves should conform to European Community Standard (CE marked).
- Clear plastic (polythene) gloves are not suitable for handling blood or body fluids as these gloves tear easily and do not have good barrier properties.

Medical/examination gloves are recommended for:

- Dealing with nosebleeds or cuts.
- Handling items, surfaces or clothing soiled with blood or body fluids.
- Staff members who have open cuts, sores or cracked skin and contact with blood or body fluids is anticipated should cover any cuts with a waterproof dressing before putting on gloves.

Household gloves are suitable for:

- Cleaning and disinfecting bathrooms or any areas contaminated with faeces, vomit or urine.

General points

- Single use gloves should be discarded after each use or if punctured, torn or heavily contaminated.
- Gloves should fit well.
- Hands must be washed after removing gloves.
- Household gloves should be durable so they do not rip or tear during use.
- Gloves are not a substitute for hand washing.

Personal hygiene

Items that may be contaminated with blood or body fluids should not be shared including:

- Towels, flannels and toothbrushes.
- Water bottles/cups/drinking glasses/eating utensils/straws.
- Mouth guards.

Pupils and staff should also be encouraged NOT to share items such as lip gloss, lip balm, lipstick, head gear, combs and hairbrushes to prevent spreading germs to others.

Suitable bins should be provided for female staff and pupils to dispose of sanitary protection.

Respiratory hygiene and cough etiquette

Respiratory hygiene and cough etiquette are effective ways to reduce the spread of germs when coughing and sneezing.

- Everyone should be encouraged to turn away when sneezing or coughing.
- Everyone should cover their mouth with a tissue (or their sleeve if there are no tissues available) when they cough or sneeze and wash their hand afterwards.
- Everyone should put their used tissues in a bin and wash their hands after contact with respiratory secretions.

In addition:

- Older children should be encouraged to keep a box of disposable paper tissues in their schoolbags for use as needed. For younger children, or where this is impractical, a plentiful supply of disposable paper tissues should be available in classrooms especially during the 'flu season'.
- Foot operated pedal bins that are lined with a plastic bag should be provided for disposal of used/soiled tissues.

See Appendix 6 for poster on cough etiquette.

Preventing blood and body fluid exposures

It is important to avoid unnecessary direct contact with blood or bodily fluids. Gloves should be worn whenever contact with blood is anticipated, e.g. going to dress a cut, helping a pupil with a nosebleed. However, should blood come in contact with intact and undamaged skin there is no risk of transmission of blood borne viruses, e.g. HIV, hepatitis B and hepatitis C. **DO NOT PANIC.** Wash the area with soap and water.

If blood comes in contact with broken/damaged skin or the eyes/mouth there may be a small but remote risk of infection and the pupil or staff member who may have been exposed should be medically evaluated either by a GP or in a hospital emergency department. If blood splashes into the eye or mouth, it is important to rinse with lots of water. Further information on the emergency management of injuries is available on the HPSC website at:

<http://www.hpsc.ie/hpsc/A-Z/EMIToolkit/>

Management of cuts, nose bleeds and bites

When dealing with cuts, nose bleeds or bites, school staff should follow the school's first aid procedure. Schools should ensure that a first aid kit is readily accessible at all times. The Health and Safety Authority (HSA) in conjunction with the Department of Education and Skills produced guidelines on managing health and safety in post primary schools. **Part 2** of *Guidelines on Managing Safety and Health - Post Primary* contains recommendations on the contents of first-aid boxes and kits (Page 86), and first-aid training requirements and number of occupational first-aiders required (Page 228). These guidelines and others of relevance to the education sector are available on the HSA website at: http://www.hsa.ie/eng/Publications_and_Forms/Publications/Education.

General points

- Cuts, abrasions or sores should be covered with a waterproof dressing.
- Absorbent material should be used to stop bleeding.
- Disposable latex or nitrile gloves should be worn by school staff when there is visible blood or they are dealing with open cuts.
- Hands should be washed immediately with soap and water after gloves are removed.

Dealing with nose bleeds

Nosebleeds are very common in children. Most stop within a few minutes however some can be quite severe.

- Put on gloves before giving direct assistance. Remember, emergency care should not be withheld if gloves are not available. There have been no cases of casual transmission of HIV in households or in school settings and although caution should be exercised when handling potentially infectious fluids, fear of infection should never prevent emergency care being given.
- Get the pupil or staff member to lean forward (so that the blood doesn't run down the back of his/her throat making them cough or splutter).
- Apply pressure to the nose by placing the fingers at the side of the bleeding nostril with the thumb against the opposite cheek and compress gently.
- If the bleeding persists despite 10-15 minutes of pressure applied in this way, the pupil/staff member should be referred for medical treatment.
- Once bleeding has stopped any areas contaminated by blood should be cleaned as outlined below. It is not unusual for children to cough or vomit swallowed blood after they have had a severe nose bleed.

Dealing with cuts or lacerations

- Put on disposable gloves.
- Stop the bleeding by applying pressure to the wound with a dry clean absorbent dressing.
- Place a clean dressing on the wound and refer for medical treatment if needed e.g. stitches required or bleeding that cannot be controlled.
- Once bleeding has stopped, dispose of the gloves immediately in a manner that prevents another person coming in contact with the blood i.e. bag separately prior to disposing into general domestic waste bag.
- Wash and dry hands.

Pupils or staff members who are known to have HIV, hepatitis B or hepatitis C infections should not be treated any differently from those whose status is unknown. Intact skin provides a good barrier to infection, and staff should always wear waterproof dressings on any fresh cuts or abrasions on their hands. Staff should always wash their hands after dealing with other people's blood even if they have worn gloves or they cannot see any blood on their hands.

Dealing with bites

Human mouths carry a wide variety of germs, some of which can be transmitted to others by bites. Human bites resulting in puncture or breaking of the skin can cause certain bacterial or viral infections so it is important they are managed promptly. The risk of transmission of blood borne viruses (e.g. HIV, hepatitis B and hepatitis C) is remote. Most bites are not serious. The first step is to look at the area and see if the skin is broken.

If the skin is not broken:

- Provide reassurance.
- Clean area with soap and water.
- No further action required.

If the skin is broken:

- Encourage the wound to bleed if not bleeding freely (apply pressure to the sides of the wound).
- Wash the wound thoroughly with running water.
- Cover area with a waterproof dressing.
- If the bite is on the hand the arm should be elevated.
- If the biter has blood in the mouth they should swill it out with tap water.
- Pupils or staff who may have been exposed should be medically evaluated either by a GP or in a hospital emergency department.

Animal bites

Unlike human bites, most animal bites do not become infected but they should still be taken seriously. Bites which do not break the skin should be washed with soap and water. If a bite breaks the skin, wash with soap and water then seek medical advice about the possible need for treatment to prevent infection. If someone becomes generally unwell or the bite looks infected they should seek medical advice.

How to manage a spill of blood or body fluids

Sometimes accidents occur on school premises, which result in the environment becoming contaminated with body fluids including blood, vomit, urine or faeces. This can present a potential risk of infection spreading to others so it is important that all spills are cleaned up as soon as possible.

If there is a spill;

Make the area safe

- Keep everyone (students, staff, parents and guardians) away from the spill. Hazard signs and cordoning may be necessary, according to circumstances.
- Assess the size of the spill and check if there is any broken glass or sharp objects nearby.
- If there is any broken glass or sharp objects in the spill use a scoop (or dust pan and brush or sturdy tongs) to pick up the sharp material and wrap securely in several layers of newspaper before placing in the general domestic waste stream. Alternatively put it directly into a puncture resistant rigid walled container.
- Remember to open nearby windows if the room is small and you are going to use a chlorine releasing disinfectant.

Protect yourself

- Cover any cuts or abrasions on your hands with a waterproof dressing.
- Always wear the appropriate protective clothing and remember to wash your hands after removing used gloves and apron (if required).

Fetch

- A pair of disposable gloves.
- A disposable plastic apron if splashing to clothing is likely.
- Absorbent disposable paper towels or kitchen towel.
- A disposable plastic waste bag.
- A measuring jug, cup or spoon.
- Chlorine releasing disinfectant i.e. bleach (**not required for spills of urine**).
- A Bucket, warm water and detergent.

Or

- A commercial spill kit .*****

Now

- Put on gloves. A disposable plastic apron may also be needed if splashing to clothing is likely.
- Place the paper towels/kitchen roll over the spill so that it will soak up the fluid.
- Carefully remove the paper towels and discard directly into a plastic bag.
- Clean the spill area with warm water, a general purpose detergent (e.g. washing up liquid or a floor cleaner for floors) and a disposable cloth.
- Then, disinfect the area with a low concentration (1,000 ppm) of bleach and allow the area dry.

- If the spill happens on a metal surface or the surface might come in direct contact with skin or clothing, the surface should be rinsed off with water after using the disinfectant to prevent the effects of bleaching and rusting.
- Discard used gloves, apron and disposable towels/cloths into a plastic bag. Tie the bag securely and place in the general domestic waste.
- Wash your hands thoroughly with soap and water and dry with paper towels.

Note:

If a spill occurs on carpet or upholstery, clean the area initially with a general purpose detergent, warm water and disposable paper towels/cloth and arrange for the carpet to be steam cleaned with an industrial carpet cleaner as soon as possible.

When using disinfectants remember:

- Chlorine releasing disinfectants (bleach) are corrosive and can damage furnishings and fabric and should not be used on carpets or wooden floors.
- Use disinfectants carefully and always read the manufacturers instructions on dilution and contact times, do not guess.
- Always move food out of the way or cover, to prevent chemicals getting into food.
- Always wear rubber gloves when handling disinfectants to avoid contact with your skin. Wear goggles if there is a risk of splashing to eyes.
- Do not mix disinfectants with hot water or other products as it can emit fumes that can be irritating to your eyes or lungs.
- It is safer to add disinfectants to water rather than water to disinfectants.
- Avoid touching your eyes when handling bleach. If bleach splashes into your eyes, rinse immediately with lots of cold water (for at least 15 minutes) and consult a doctor.
- If disinfection is required, you must always clean first and rinse with water afterwards.
- Never recycle old food or drinks containers to store chemicals.
- Always store chemical in a cool shaded place out of reach of children.

Dilution charts**Table 3.1. Dilution chart for household bleach (e.g. Domestos)**

Household bleach (4% Chlorine)	Metric	PPM 40,000ppm	Dilutions
Blood/body fluid spillages and items contaminated with body fluids	Add 25mls bleach to 1 litre water	1,000ppm	1/40

Table 3.2. Dilution chart for Milton 2

Milton 2 (2% Chlorine)	Metric	PPM 20,000ppm	Dilutions
Blood/body fluid spillages and items contaminated with body fluids	Add 50ml (about 2 capfuls) Milton to 1 litre water	1,000ppm	1/20

*******Commercial spill kits:** Typically contain disposable gloves, plastic waste bags, scoops and chlorine releasing disinfectants in the form of tablets, powder or granules. The active ingredient is usually sodium dichloroisocyanurate.

Confidentiality

Pupils and staff have a legal right to confidentiality regarding their medical details. This confidentiality must never be breached by school personnel except to healthcare professionals on a “need to know” basis. School staff should be aware that if they implement standard precautions at all times there should be no need to routinely disclose to them confidential information or sensitive diagnoses. Everyone (pupils and staff) has a right to be treated equally, just as everyone has a right to be protected from exposure to germs.

Resources

<http://www.hpsc.ie/hpsc/A-Z/MicrobiologyAntimicrobialResistance/InfectionControlandHAI/Posters/>

Chapter 4: Immunisation

Childhood Immunisation

Preventing an illness is preferable to treating it once it has developed. There are now many safe and effective vaccines against many serious and deadly illnesses, e.g. polio and tetanus. Some vaccines are given routinely to all the population, others only to individuals thought to be at high risk of certain infections. Immunisation involves giving a person a killed germ, a live but weakened germ or just a critical part of the germ. This induces activation of the immune system and results in immunity to that specific germ. The principle of immunisation is simple: it gives the body a memory of infection without the risk of natural infection.

The incidence of many of the common infectious diseases of childhood would be further reduced if all children entering school were appropriately immunised. However, there are a very small number of children in whom specific immunisations are truly contraindicated. Immunisation of all suitable children would ultimately reduce the number of infected children in the community and thus reduce the likelihood of a susceptible child being exposed to infection.

Immunisation Schedule

In 2008 there was a major change to the childhood immunisation schedule for children born on or after 1st July 2008. The main changes were the introduction of two additional vaccines, pneumococcal vaccine and hepatitis B vaccine. Children born before that date would not have routinely received either pneumococcal or hepatitis B vaccines. Parents should be encouraged to ensure that their children receive all immunisations at the appropriate age, as shown in Table 4.1 below. This includes children who come to live in Ireland from another country.

It is also very important that pupils going on work experience or school trips abroad should be appropriately vaccinated, especially if they will be working or interacting with young children or other vulnerable groups.

Table 4.1 Current Irish Childhood Immunisation Schedule, 2013

Age	Immunisations	Where available
Preschool		
Birth	BCG	Hospital or HSE Clinic
2 months	6 in 1 + PCV	GP Surgery
4 months	6 in 1 + MenC	GP Surgery
6 months	6 in 1 + PCV + MenC	GP Surgery
12 months	MMR + PCV	GP Surgery
13 months	MenC + Hib	GP Surgery
School		
4 to 5 years (Junior Infants)	4 in 1 + MMR	HSE School Immunisation Services/GP Surgery*
12 -13 years (girls only) (1 st year second level school)	HPV x 3 doses	HSE School Immunisation Services
12 -13 years (1 st year second level school)	Tdap	HSE School Immunisation Services

BCG	Bacille Calmette Guerin (TB) vaccine
6 in 1	Diphtheria, Haemophilus influenza b, Hepatitis B, Pertussis (whooping cough), Polio and Tetanus vaccine
PCV	Pneumococcal Conjugate Vaccine
MenC	Meningococcal C vaccine
MMR	Measles, Mumps and Rubella vaccine
4 in 1	Diphtheria, Pertussis (whooping cough), Polio and Tetanus vaccine
HPV	Human Papillomavirus vaccine
Tdap	Tetanus, low dose diphtheria and low dose pertussis (whooping cough), vaccine

* In most areas it is the HSE school immunisation team that offers a vaccination service to school based children, however in some areas GPs provide this service. Parents can contact their local HSE office for further information.

Information on local HSE offices can be accessed at the follow web link, <http://www.hse.ie/eng/services/list>.

For information on all vaccine preventable diseases, please see Chapter 9.

In addition, the website of the National Immunisation Office, www.immunisation.ie , is a very useful online resource with accurate and timely information on all immunisation issues in Ireland.

Chapter 5: Staff Health

Adult Immunisation

School staff that are appropriately immunised pose a significantly smaller risk to the children in their care and, in turn, protected against the dangers that certain vaccine preventable infectious diseases pose to themselves and, if pregnant, to their unborn children. All staff working in schools should ensure that they are up to date with the routine immunisations – diphtheria, tetanus, pertussis (whooping cough), polio, meningococcal C (if under 23 years of age), measles, mumps and rubella. Immunisation should be in accordance with national immunisation guidelines.

Exclusion

All school staff should be aware of the need for self exclusion if they develop symptoms of gastrointestinal illness, fever or skin rashes, any one of which may pose a risk of infection to pupils and staff. Exclusion periods are provided in Chapter 9 - Management of Specific Infectious Diseases - under the relevant infectious diseases.

Infectious Diseases Relevant to Staff

The following are diseases relevant to staff. Many are vaccine preventable (i.e. they can be prevented by appropriate immunisation). As already stated above, immunisation should be in accordance with national immunisation guidelines.

- **Chickenpox (Varicella)**

Chickenpox infection in pregnancy may cause more severe illness and poses a risk to the foetus. All female staff of childbearing age should discuss testing for chickenpox immunity with their GP (or occupational health provider). Those whose bloods test shows that they are not immune should be offered vaccination.

- **Hepatitis B**

Hepatitis B has been reported to occur more frequently in facilities for those with intellectual disability. Staff in these facilities should receive hepatitis B vaccine. There is no indication for school staff elsewhere to receive hepatitis B vaccine routinely since good implementation of standard precautions should provide adequate protection against blood and body fluid exposure (see Chapter 3). Furthermore, now that hepatitis B vaccine has been included in the routine childhood immunisation schedule, vaccinated children should not pose a risk in the future.

There is no need for staff with chronic hepatitis B infection to be excluded from working in a school setting.

- **Influenza**

Influenza has a tendency to spread readily through group settings such as schools and long stay residential facilities. As a result, staff who are pregnant or in another recognised risk group for influenza should ensure that they are fully immunised against influenza (risk groups for seasonal influenza can be found on the website of the National Immunisation Office at <http://www.immunisation.ie/en/AdultImmunisation/FluVaccination/>).

- **Measles**

All staff working in schools should ensure they are protected against measles, either by vaccination or a history of measles infection. Most individuals born before 1978 are likely to have had measles infection. Infection with measles during pregnancy can result in early delivery or even loss of the baby. Therefore, if a non-immune pregnant woman is exposed to measles, her GP or antenatal care provider should be informed immediately to ensure appropriate management.

- **Mumps**

All staff working in schools should ensure they are protected against mumps, either by vaccination or a history of mumps infection. Most individuals born before 1978 are likely to have had mumps infection.

- **Rubella (German Measles)**

All female staff working in schools should ensure that they are protected against rubella, either by having received the rubella vaccine or having had a blood test to confirm immunity. Rubella may have devastating consequences on the developing baby if a non-immune mother is exposed in early pregnancy. If a pregnant woman comes in contact with rubella and is unaware of her immune status, she should contact her GP or antenatal care provider immediately to ensure appropriate investigation.

- **Pertussis (Whooping Cough)**

Pregnant women are now recommended to have a dose of pertussis vaccine during their pregnancy. This is to boost their own immunity, which they pass onto the baby in the womb. This protects the baby for the first few months of life, before the baby is fully vaccinated. Pregnant staff should discuss pertussis vaccination with their GP or antenatal care provider.

Slapped Cheek Syndrome (Fifth Disease - Parvovirus B19)

Slapped cheek syndrome is usually a mild self-limiting viral illness caused by parvovirus B19. It is very common in childhood and therefore most adults have been infected and are immune to parvovirus. Simple hygiene measures including scrupulous hand washing provide the most effective method of prevention and control of this viral disease. There is no vaccine available.

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. Staff with these conditions should seek medical advice if they believe they may have been exposed to a case either at home, in the community or at work. See below for advice for pregnant women.

- **Tuberculosis (TB)**

TB symptoms may be quite non-specific and may include one or more of the following - persistent cough of at least three weeks duration, night sweats, anorexia and weight loss. Staff should be encouraged to report such symptoms and seek medical advice should they arise. They should be made aware (e.g. at induction) of the particular vulnerability of children to infectious TB.

- **Gastroenteritis**

All staff who have had a gastroenteritis (i.e. diarrhoea and/or vomiting) should be excluded until 48 hours have elapsed since their last episode of diarrhoea or vomiting. This is especially important for staff who are involved in preparation or serving of food.

Special circumstances

- **Pregnant staff**

It is important that staff of childbearing age should ensure that they are appropriately immunised and compliant with infection control precautions, as outlined in Chapter 3.

Slapped Cheek Syndrome (Parvovirus B19)

Slapped cheek syndrome is usually a mild self-limiting viral illness, caused by parvovirus B19 that is very common in childhood. 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 a 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 untoward event. On rare occasions, infection in the foetus before the

pregnancy has reached 21 weeks may cause anaemia which may need treatment. Rarely infection in early pregnancy has been associated with miscarriage.

Pregnant women, who may have been exposed to a case either at home, in the community or at work, should inform their doctor so that follow-up, if required, can be arranged. Simple hygiene measures including scrupulous hand washing and avoiding sharing eating and drinking utensils provide the most effective method of prevention and control of this viral disease.

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.

Chapter 6: Environmental Hygiene

Hygiene and the Environment

Inadequate routine cleaning of the environment has been implicated in the transmission of gastrointestinal and respiratory illnesses.

Germs are everywhere and are introduced into school settings in a variety of ways e.g. on people, food, and pets. Germs can survive on environmental surfaces (e.g. floors, tables, door handles, and toys) for long periods. Viruses, in particular, can be shed in large numbers in respiratory secretions and in faeces and can survive on surfaces for days, or in the case of certain viruses such as norovirus (the virus responsible for winter vomiting illness), for weeks. Environmental hygiene is therefore a vital part of good infection prevention and control.

Terminology

Cleaning is a mechanical process (scrubbing) using detergent and water to remove food residues, dirt, debris and grease.

Disinfection is a process that uses chemicals (disinfectants e.g. household bleach) or heat (e.g. dishwashers) to reduce the number of bacteria on environmental surfaces to a safe level.

Disinfectants are chemicals that will reduce the number of germs to a level at which they are not harmful.

Detergents are chemical cleaning agents (e.g. soap, washing-up liquid, washing powder) that remove soil, grease and dirt but do not kill germs.

Cleaning

Cleaning is essential in the prevention of infection. Normal cleaning methods, using household detergents and warm water is considered to be sufficient to reduce the number of germs in the environment to a safe level.

The routine use of disinfectants **is not necessary and is not recommended**.

How to Clean

- Cleaning is best achieved using a general purpose detergent and warm water, clean cloths, mops and the mechanical action of wiping/scrubbing. The area should then be rinsed and dried.
- Thorough cleaning with detergents should remove all contaminants including dust, dirt, faeces, blood, pus, urine, other body fluids and large numbers of germs.
- The manufacturer's instructions for mixing, using and storing solutions must always be followed. Using excessive amounts of cleaning agents will not kill more germs or clean better but it will damage work surfaces, make floors slippery and give off unpleasant odours.
- Cleaning products should be suitable for their intended use.
- Expiry dates on packaging should be checked routinely.
- Cleaning staff should always read the hazard warning labels and ensure that they observe any specified health and safety precautions. Product material safety data sheets should be available.
- Chemicals should be stored in a cool, dry place out of reach of young children. They should never be stored in recycled food or drinks containers.

Routine Cleaning – General Principles

- All areas should be cleaned regularly as part of a **written cleaning policy**.
- **Written cleaning schedules** should be available and should be monitored to ensure that they are adequate and are being followed.
- Warm water and a general purpose detergent are sufficient in most instances.
- Water should be changed when it looks dirty, after cleaning bathrooms and after cleaning the kitchen.
- Always clean the least dirty items and surfaces first (e.g. countertops before floors, sinks before toilets).
- Always clean high surfaces first, and then low surfaces.
- Separate **colour coded** cleaning cloths and cleaning equipment should be used for kitchen areas, classrooms and toilets.
- Cleaning cloths can either be disposable or reusable. Disposable cloths should be disposed of each day.
- Ideally, reusable cloths should be laundered daily on a hot wash cycle (at least 60°C) in a washing machine and then tumbled dried.
- Ideally, mop heads should be removed and washed in the washing machine at 60°C at the end of each day or in accordance with the manufacturer's instructions.
- If a school does not have a washing machines, after use the cloths and mops should be cleaned thoroughly with warm water and detergent, then disinfected using a low concentration of household bleach (see Chapter 3), rinsed and air dried.
- Mop heads/buckets should not be cleaned in a sink that is used for food preparation. Mop heads should not be left soaking in dirty water.
- Buckets should be emptied after use, washed with detergent and warm water and stored dry. If equipment is stored wet, it allows germs to grow increasing the risk of cross infection.
- Equipment, fixtures and fittings should be cleaned regularly depending on the frequency and intensity of use and not just when visibly dirty.

Cleaning Schedules

A written cleaning schedule should be available for cleaning staff which details:

- Item(s) and area(s) to be cleaned.
- The frequency of cleaning.
- Cleaning materials to be used.
- Equipment to be used and its method of operation.

Disinfection

The routine use of chemical disinfectants for environmental hygiene is **not recommended** as thorough regular cleaning with detergent and warm water is sufficient for most situations.

A disinfectant is recommended however, in circumstances where there is a higher risk of cross-infection (e.g. during outbreaks of gastrointestinal illness) or if there has been a spillage of blood, faeces or vomit (see Chapter 3).

Disinfectants are potentially hazardous and must be used with caution and according to the manufacturer's instructions (see Chapter 3).

Surfaces and items must be cleaned **before** a disinfectant is applied as most disinfectants are inactivated by dirt.

Toilets and Wash Hand Basins and Showers

Inadequate and inaccessible toilet facilities have been found to result in pupils drinking less in order to avoid using the toilet. This results in dehydration, headaches, constipation, fatigue and poor concentration. Toilets that are locked or remote may not be cleaned regularly.

School toilets should be clean and in good repair and monitored regularly.

All toilet areas should have hand washing facilities including hot and cold running water.

Toilets, wash hand basins and surrounding areas should be cleaned at least daily and whenever there is visible soiling. Toilets should be cleaned thoroughly using a general purpose detergent paying particular attention to frequently touched areas such as toilet flush handles, toilet seats, basins and taps, and toilet door handles.

A chlorine releasing disinfectant (see Chapter 3) should be applied for visible soiling or during outbreaks of diarrhoea or vomiting, after pre-cleaning with detergent.

Cream cleansers are suitable to use on ceramics e.g. wash hand basins and showers.

Separate cloths should be used for cleaning the toilet and wash hand basin to reduce the risk of spreading germs from the toilet to the wash hand basin.

Cleaning staff should inspect the toilets and hand washing facilities at regular intervals to ensure;

- The toilets and wash hand basins are in good working order (e.g. the locks on toilets are working, toilets are not blocked).
- There is a plentiful supply of liquid soap, paper towels and toilet rolls.
- Waste bins are not overflowing.

A checklist should be located in the toilets which is dated and signed at regular intervals.

Showers can act as a potential source of cross infection if they are not cleaned after use. Infections that are known to spread in showers include verruca (viral) and athlete's foot (fungal). Shower heads need regular cleaning to prevent scaling and a build up of dirt which will impede flow

Water fountains and other drinking outlets should not be located in the toilets.

Water system maintenance

Poorly maintained water systems can harbour bacteria including legionella that could cause infections so it is very important to maintain constant circulation in a water system. If a school has been closed for a prolonged period of time, e.g. during school holidays, water outlets, toilets, taps and especially showers should be flushed when the school re-opens by running them for 3 minutes. Shower heads should be cleaned and maintained (de-scaled) regularly. Water storage tanks should be cleaned periodically. Part 2 of the HSA's *Guidelines on Managing Safety and Health in Post-Primary Schools* contains a risk assessment template (General School Risks Assessments - No. 30, page 107-108) for the management of *Legionella* bacteria in a school's water distribution system. These guidelines are available on the HSA website at: http://www.hsa.ie/eng/Publications_and_Forms/Publications/Education. Further guidance on *Legionella* is available on the HPSC website <http://www.hpsc.ie/hpsc/A-Z/Respiratory/Legionellosis/>

Toys and educational/recreational materials and appliances

Toys may become contaminated with germs that are picked up on unwashed hands. If toys are shared between pupils they may become a source of cross infection.

General points

All toys (including those not currently in use) should be cleaned on a regular basis e.g. weekly. This will remove dust and dirt that can harbour germs.

Toys that are visibly dirty or contaminated with blood or body fluids should be taken out of use immediately for cleaning or disposal.

When purchasing toys choose ones that are easy to clean and disinfect (when necessary).

If cloth or soft toys are used they should be machine washable.

Jigsaws, puzzles and toys that young pupils may be inclined to put in their mouths should be capable of being washed and disinfected.

All play equipment should be checked for signs of damage e.g. breaks or cracks. If they cannot be repaired or cleaned, they should be discarded.

Clean toys and equipment should be stored in a clean container or clean cupboard.

The manufacturer's cleaning instructions should always be followed.

Soft modelling materials and play dough should be changed regularly.

Cleaning Procedure

- Wash the toy in warm soapy water, using a brush to get into crevices.
- Rinse the toy in clean water.
- Thoroughly dry the toy.
- Some hard plastic toys may be suitable for cleaning in the dishwasher.
- Toys that cannot be immersed in water i.e. electronic or wind up should be wiped with a damp cloth and dried.

Disinfection Procedure

In some situations toys/equipment may need to be disinfected following cleaning. For example:

- Toys/equipment that pupils place in their mouths.
- Toys/equipment that have been soiled with blood or body fluids.
- During an outbreak of infection.

If disinfection is required:

- A chlorine releasing disinfectant should be used diluted to a concentration of 1,000ppm available chlorine (see Chapter 3).
- The item should be rinsed and dried thoroughly.

Waste Disposal

The majority of waste produced in schools is non hazardous and can be disposed of in black plastic bags in the normal waste stream through the local authority. Waste should be recycled in accordance with local authority policy.

Disposal of Sharps

Pupils who require injections may need to bring needles and syringes to school (e.g. adrenaline pens, insulin syringes) which may present an infection risk to other pupils or staff members once used. It is important to dispose of these items properly. Pupils who need to self inject during school hours should bring in their own sharps boxes which can be returned to them to be discarded through their local hospital, health centre or GP, once used.

Chapter 7: Animals and Infection Control

Pet hygiene

Pets may enhance the experience of pupils in schools. However, some animals including exotic species such as reptiles, fish or birds that are often kept as pets can be a source of human infection. Infections that are passed from animals to humans are known as zoonoses. Some people such as pregnant women, infants, the elderly and people with weak immune systems, AIDS/HIV and those receiving chemotherapy are at greater risk of developing more serious infection. There is no means of knowing which animals may be carrying infection, so one must act at all times on the basis that an animal might be infected. However, sensible precautions, such as effective hand washing, can reduce any risk of infection.

The principal of the school should ensure that a competent person is responsible for any animals brought into the school and that there is no risk of contravening the relevant Health & Safety legislation.

Infection from pets is usually acquired by ingestion of contaminated material e.g. by:

- Eating without washing hands.
- Sucking fingers that have been contaminated.
- Eating food/sweets that have fallen to the ground.

Potential hazards include:

- Touching animals.
- Touching animal/fish foodstuffs.
- Drinking raw(unpasteurised) milk.
- Touching animal faeces.
- Drinking untreated water.

The following principles should underpin the management of pets in any school:

- Only animals in good health should be allowed into a school.
- Iguanas, snakes, turtles and other reptiles may carry specific illnesses and are not appropriate animals to be brought into classrooms for younger children particularly those under five years.
- Pupils must be supervised when handling pets.
- Hands should be washed after contact with animals, their food, bedding or litter.

Farm and zoo visits

Visits to farms and zoos have grown in popularity over recent years; they are considered to be both educational and an enjoyable leisure pastime. Such visits give pupils the chance to have contact with animals they otherwise might not see and also to understand where food comes from.

There are many potential infection hazards (as there are with domestic pets) on open farms, including pet- and animal-farms, and zoos. It is important to remember that diseases affecting animals can sometimes be passed to humans. A number of germs acquired from animals can cause diarrhoea and/or vomiting – which is usually a mild or temporary illness. However, some infections, such as verocytotoxin producing *E. coli* (VTEC) can cause more severe illness, especially in young pupils. There is no means of knowing which animals may be carrying VTEC, so one must act at all times on the basis that an animal might be infected. Only a very small number of germs are needed to cause illness.

Serious outbreaks of infections (e.g. cryptosporidium and VTEC) have been reported amongst pupils following outings to zoos and farm parks.

Infection is mainly acquired by eating contaminated material, sucking fingers that have been contaminated, or by eating without washing hands.

Recommendations to Follow in Relation to Open Farm Visits:

Before the Visit

Before the visit, the organiser should make contact with the farm or zoo being visited to discuss visit arrangements and to ensure that adequate infection control measures are in place. The organiser should be satisfied that the pet farm/zoo is well managed and precautions are in place to reduce the risk of infection to visitors.

The organiser should ensure that hand washing facilities are adequate, accessible to pupils, with running hot and cold water, liquid soap, disposable paper towels, clean towels or air dryers, and waste containers. They should also ensure that all supervisors understand the need to make sure the pupils wash, or are helped to, wash their hands **after** contact with animals.

During the Visit

- Pupils must be supervised at all times.
- Cuts and grazes should be covered with a waterproof plaster.
- Hands should be washed with warm running water and dried thoroughly after contact with animals, animals' feed or bedding, before eating and drinking, after using the toilet, and on leaving the farm. Small children will require supervised hand washing.
- Pupils and staff should not eat or drink anything while touring the farm.
- Pupils and staff should only eat in the designated areas.
- Pupils should not put fingers in their mouths or the mouths of animals.
- Pupils and staff should wear appropriate clothing, including sturdy shoes or Wellingtons but not sandals.
- Visitors should not drink from taps unless specifically labelled as drinking water.
- Visitors should not touch compost, animal waste and after any accidental contact should wash their hands thoroughly.
- Since boots and clothes can become contaminated during the visit it is important to remind pupils to wash their hands after removing their clothes and boots and before doing anything else (e.g. eating). Dirty boots should be cleaned with hot water and detergent. Footwear should be changed or cleaned before leaving and then hands washed.
- Pregnant women should not handle sheep or newborn lambs.

After the Visit

- If a member of the group shows signs of illness (e.g. vomiting and/or diarrhoea) after a farm/zoo visit, they should visit their GP and explain that they have had recent contact with farm animals.
- If two or more members are ill please follow the above action. The school authorities should also contact their local Department of Public Health as further action may be necessary. See Appendix 7 for Departments of Public Health contact details.

Further Information

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>.

Chapter 8: High Risk Contact and Collision Sports

Background

Sporting activities can be a risk factor for the spread of infectious diseases. The close contact in some sports can allow infections to spread by direct skin-to-skin contact, inhalation of infected droplets or aerosols, or injuries resulting in breaks to the skin which disrupt the body's natural defence mechanism.

Some sports activities involve closer and more frequent body-to-body contact with other players or contact with equipment and are associated with a higher risk of injury or trauma. These sports are referred to as high risk contact and collision sports. Evidence to date suggests that the highest risk sports are full-contact martial arts, boxing, and wrestling. For many high risk close contact sports, e.g. rugby, the degree of close contact increases as the player becomes more experienced and participates at a higher level of play or competition.

Terminology can vary and the definitions applied in this guidance are as follows:

- High-risk contact / collision sports – e.g. rugby, full-contact martial arts, boxing, wrestling, Gaelic football, hurling.
- Medium to high-risk contact – e.g. soccer, basketball, hockey.
- Limited contact – e.g. squash, volleyball, gymnastics.
- Non-contact – e.g. running, dancing, aerobics, swimming, tennis, weightlifting.

Infections in contact sports can be spread by:

- Person-to-person contact e.g. skin contact.
- A common source e.g. contaminated equipment / facilities, or soil.
- Airborne/droplet spread e.g. mumps, glandular fever, influenza.

Infections of particular relevance to contact sports include skin infections, blood-borne virus infections, glandular fever and tetanus.

Pupils, teachers and coaches are at risk of infection. Therefore all need to be educated about the necessary precautions and hygiene requirements.

General Precautions for All Sports, Including High Risk Sports

Pupils and teachers should:

- Wash hands regularly with liquid soap. To minimise the risk of infection bars of soap should not be provided in communal shower / wash rooms.
- Shower after activity (if facilities are available).
- Not share mouth guards or water bottles.
- Not share towels or personal hygiene products (e.g. razors) with others.
- Wash all kit after each use.
- Wash personal gear (e.g. pads and shin guards) weekly.
- Refrain from full body (chest, arms, abdomen) cosmetic shaving.
- Apply standard precautions when dealing with any blood or body fluids, or contact with skin lesions.

Pupils should be appropriately immunised with two doses of MMR vaccine, and 4-5 doses of tetanus depending on age (4 doses <11-14 years of age; 5 doses >14 years of age).

Blood Borne Infections (hepatitis B, hepatitis C and HIV)

The risk of transmission of a blood borne virus from one pupil to another during contact and collision sports is extremely low. Sports such as boxing, wrestling and tae kwon do have the highest, although still extremely low, risk. Hepatitis B is the highest risk virus as it is present in greater concentrations in blood; it is resistant to simple detergents; and it can survive on environmental surfaces for up to 7 days. Research has shown that athletes are more likely to acquire blood borne virus infections in off-the-field settings e.g. through sexual contact.

Precautions

- Pupils, teachers and coaches involved in contact sports should be educated on the risk of blood borne virus (BBV) transmission (both on and off the pitch), how to deal adequately with bleeding injuries, and how to prevent infection if there are any skin abrasions or lesions (See Chapter 3).
- Any pupil with a bleeding injury should be removed immediately from the field of play.
- Bleeding injuries should be promptly treated and standard precautions applied i.e. hand hygiene, gloves (see Chapter 3).
- Blood-stained clothing should be removed and placed in a plastic bag for appropriate laundering.
- Ideally disposable materials should be used for cleaning blood which are then disposed of correctly.
- Any equipment contaminated with blood should be cleaned thoroughly first, then disinfected with a 1,000ppm bleach preparation (see Chapter 3) and dried appropriately.
- Pupils with cuts, abrasions, or oozing skin lesions should report them before participating in any activity (see below for more specific advice on infectious skin lesions).
- Those administering first aid should be appropriately trained.

Exclusion

There is no indication to exclude a pupil, teacher or coach who is infected with HIV, HCV or HBV from sporting activities if they are medically fit enough to participate.

Individuals with acute viral infections may not be well enough to participate for a period of time after the initial infection and their treating doctor will advise on when they can return to sporting activities.

In the event of an acute bleeding injury during an activity pupils cannot return to the field of play until the wound has been cleaned and disinfected, bleeding has stopped completely, and the wound is covered with a secure, occlusive dressing. If the wound cannot be securely occluded then the pupil cannot return to the sporting activity.

Skin Infections

Skin infections that can be transmitted during high risk contact sports include fungal, bacterial and viral infections. A more detailed list of the type of infections is provided in Table 8.1 below. Most skin infections are transmitted via skin-to-skin contact. Bacterial and fungal infections may also be transmitted by contact with equipment such as exercise mats.

Table 8.1 Germs and the skin infections they cause that are of relevance in high risk contact / collision sports

Fungal
<ul style="list-style-type: none"> • Tinea capitis / corporis → ringworm • Tinea cruris → jock itch • Tinea pedis → athlete's foot
Viral
<ul style="list-style-type: none"> • Herpes simplex virus 1 (HSV-1) → herpes labialis / gladiatorum / rugbeiorum (scrum-pox) • Molluscum contagiosum • Varicella-Zoster virus → chicken pox / shingles • Human papillomavirus → warts
Bacterial
<ul style="list-style-type: none"> • Streptococcus & Staphylococcus (including MRSA) → impetigo, folliculitis, furuncles, carbuncles, cellulitis
Parasitic
<ul style="list-style-type: none"> • Scabies • Headlice

Precautions

Strategies for reducing potential exposure to skin infections during high risk contact and collision sports include:

- Strict hand hygiene.
- Showering after activity.
- Adequate regular cleaning and disinfection of facilities, changing rooms, and sports equipment.
- Athletes notifying a parent/guardian and teacher/coach of any skin lesion prior to participation.
- Correct diagnosis of skin rashes or lesions by a medical doctor.
- Adherence to the recommended periods of exclusion for high-risk contact sports (see section below).

If an outbreak of a skin infection occurs on a team, all team members should be evaluated to help prevent further spread of infection. Recommended periods of exclusion must be adhered to.

Tinea pedis (athlete's foot) is extremely common and exclusion from sporting activities is not recommended. However transmission can be reduced by educating pupils to wash feet regularly, dry between the toes thoroughly, and wear cotton socks. The infection should be treated and infected pupils should wear protective footwear in showers and changing rooms.

Two types of Herpes simplex virus (HSV) – HSV type 1 (HSV-1) and HSV type 2 (HSV-2) – cause skin lesions. HSV-1 is classically associated with lesions around the mouth (lips, tongue, palate, gums) and HSV-2 with genital lesions. However either can cause perioral or genital lesions. HSV infection typically involves a primary infection that becomes dormant and re-activates from time-to-time. Re-activation of HSV-1 infections usually affects the lips (i.e. herpes labialis/cold sores). Transmission of HSV infections occurs through viral shedding and direct contact with skin or bodily fluids during a primary infection or a reactivation. Herpes gladiatorum is a HSV infection of the chest, ear, face, and hands among athletes in contact sports, such as wrestling or rugby. This infection is usually the result of HSV-1 transmission by direct skin-to-skin contact during practice or competition. HSV infections and reactivations are usually self-limiting and treatment is not usually indicated. However, prompt treatment with topical or oral anti-viral medication can reduce the length of symptoms, viral shedding and infectivity. Some children who are involved in contact sports and who experience frequent HSV reactivations may benefit from oral anti-viral medication. Children with active lesions should not share eating utensils, cups, water bottles, or mouth guards.

Exclusion of Pupils with Skin Infections who are Involved in High Risk Contact / Collision Sports

High risk sports that involve significant skin-to-skin contact with an opponent or equipment require stricter participation restrictions for infected people. For high risk contact and collision sports it is not usually appropriate to permit a player with active skin lesions to return to play with covered skin lesions. Participation with a covered lesion can be considered for lower contact sports if the area of skin can be adequately and securely covered.

Exclusion guidelines are presented for individual conditions in Table 8.2. Players should not be allowed return to high risk sporting activities until these are met. Many of these exclusion criteria require the correct diagnosis and treatment of the skin infection. Many also specify the duration of treatment that must be completed before the pupil can return to play.

Covering of active skin lesions is generally not permitted to allow return to play. For lesions that are permitted to be covered the recommended approach is to cover with a bio-occlusive dressing then pre-wrap and tape.

Table 8.2 Exclusion Guidelines for Pupils with Skin Infections who are Involved in High Risk Contact/Collision Sports

Infection	Pupil should be excluded until the criteria listed are met:
Tinea capitis (Scalp ringworm)	- They have completed at least 14 days of the appropriate oral or topical antifungal
Tinea corporis (Body ringworm)	- They have completed at least 72 hours of the appropriate oral or topical antifungal - Lesions are securely covered
Primary herpes simplex virus 1 (HSV-1)	- There are no active lesions - All vesicles are crusted over - They have had no systemic symptoms (e.g. fever or malaise) for 72 hours - There have been no new lesions for 72 hours
Reactivation HSV-1 (e.g. cold sores)	- There are no active lesions - All vesicles are crusted over
Chicken-pox / Shingles	- There are no active lesions - All vesicles are crusted over - They have had no systemic symptoms (e.g. fever or malaise) for 72 hours - There have been no new lesions for 72 hours
Molluscum contagiosum & Warts	Should be covered if prone to bleeding when abraded
Bacterial infections (e.g. staphylococcal or streptococcal)	- There are no oozing, weeping, or discharging lesions - There have been no new skin lesions for at least 48 hours - Some infections may require completion of 48-72 hours of the appropriate oral antibiotic On return to play non-active healing lesions should be securely covered until fully healed
Pediculosis (headlice)	- They have completed treatment - There is no evidence of live lice
Scabies	- They have completed treatment - There is no evidence of infestation

Other Infections

Infectious Mononucleosis (Glandular Fever)

Glandular fever is caused by the Epstein Barr virus (EBV) and is generally a mild self-limiting illness. However, in rare case it can be complicated by rupture of the spleen. Therefore, it is recommended that pupils do not participate in body contact / collision sports for 4 weeks after onset of illness. Due to the nature of the illness many pupils may not be ready to return to full team participation within 4 weeks. A gradual return to full physical activity is recommended.

Tetanus

Tetanus is a severe disease but, thanks to vaccination, is now rare in Ireland. However, spores from tetanus bacteria are ubiquitous in soil, particularly ground contaminated by animal faeces, such as sports fields used by farm animals. Therefore the potential for tetanus spores to enter into a wound or break in skin remains.

Precautions for pupils undertaking sporting activity in outdoor settings where contact with soil is likely include:

- Pupils should be appropriately immunised with tetanus containing vaccine (4 doses <11-14 years of age; 5 doses >14 years of age).
- Wounds and broken skin should be covered.
- Injuries that involve damage to skin should be attended to promptly; cleaned and disinfected thoroughly and covered before the player may return to the field of play.

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) 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[®]) 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 1st 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, 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

Appendices

Appendix 1:

Schools on Private Water Supplies

Most schools are supplied by public water which is provided by the relevant Local Authority who is also responsible for ensuring the quality of the water. If a school's water is supplied from a private well or small private group water scheme it is important that the school is sure that the quality of the water is satisfactory. A well that is used for the supply of water to a school is classed as a regulated supply and must comply with the requirements of SI No. 278, European Communities (Drinking Water) (No. 2) Regulations, 2007. The supply must be registered with the Local Authority and the water must meet the quality standards as laid out in these regulations.

Wells draw water from groundwater that can become polluted by chemicals and germs such as *E coli* and *Cryptosporidium*. Groundwater pollution has become an increasingly serious problem in Ireland. Even water from a deep well can become contaminated with faecal material. Water that changes in colour after heavy rainfall may indicate a significant risk of contamination. However, water can become polluted without any obvious change in taste, smell or colour.

Verocytotoxigenic *E coli* (VTEC) (see Chapter 9) is a particularly virulent gastrointestinal infection. Patients who become infected with VTEC are 3 or 4 times more likely to have consumed water from untreated well or other private water.

Private water supplies must be properly protected and treated. In general, continuous disinfection (for example with ultraviolet (UV) treatment) as opposed to sporadic disinfection is recommended. Treatment systems must be regularly maintained. In addition wells must be physically protected from contamination, for example, from surface water run-off, animal or human effluent, fertilizer, pesticides, or other chemicals.

If a school has any concerns about the quality of their water supply or queries about testing, treatment, or maintenance they should contact their local Environmental Health Officer or Local Authority.

Further information on private water supplies is available on the HPSC website at <http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/VTEC/VTECandwater/>

Posters on Hand Washing and Respiratory Etiquette

Appendix 2: Hand washing poster: Wash your hands after...

Appendix 3: Hand washing poster: Be a germ buster

Appendix 4: Hand washing poster: Suds up and away

Appendix 5: Hand washing poster: 6 steps of hand washing

Appendix 6: Respiratory etiquette poster

Wash Your Hands After...

1



**Playing with
pets**

2



**Using the
bathroom**

3



**Sneezing, blowing
your nose &
coughing**

4



**Touching a cut or
open sore**

5



Playing outside

6

AND Before...

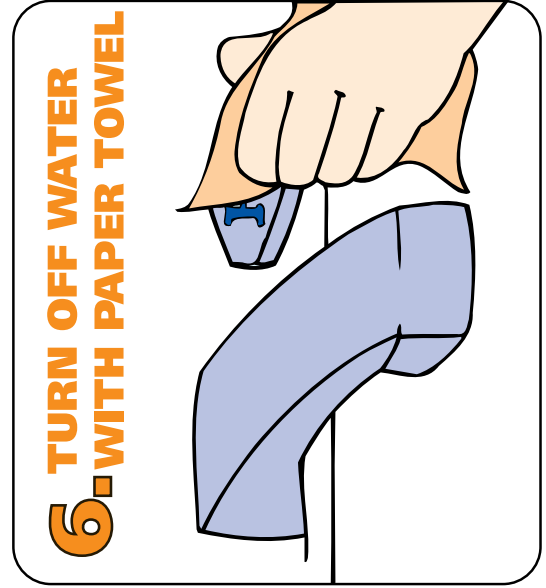
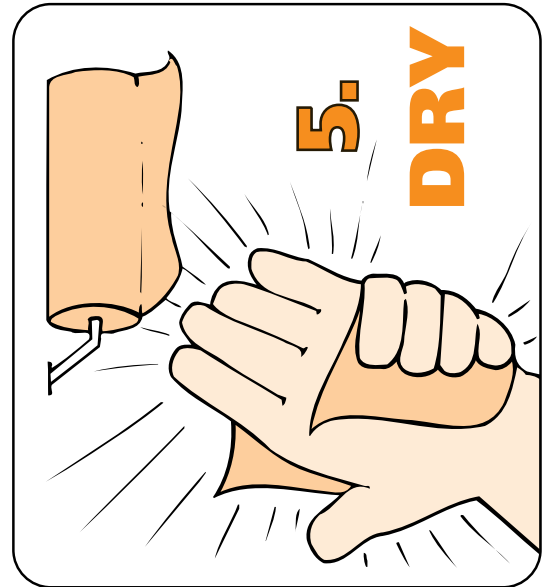
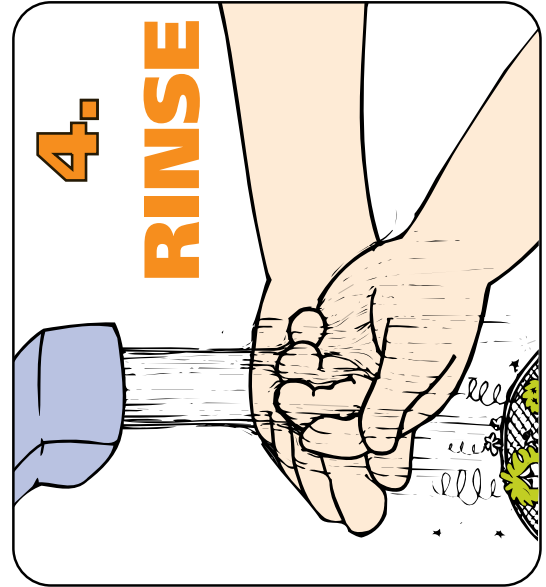
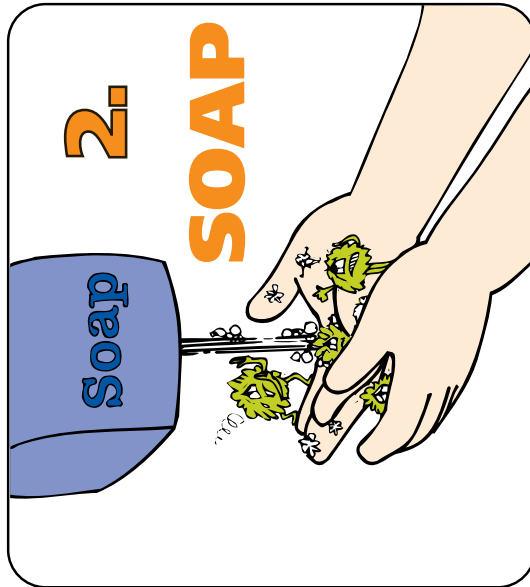
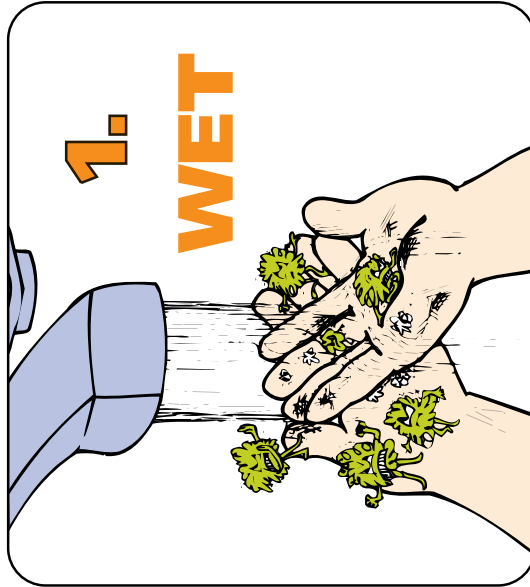


Eating

Developed by University of Nebraska—Lincoln Extension in Lancaster County and Lincoln-Lancaster County Health Department

Be A Germ-Buster

WASH YOUR HANDS



Minnesota Department of Health
 Food Safety Center
 625 N Robert St, PO Box 64975, St. Paul, MN 55164
 651-201-5414, TDD/TTY 651-201-5797, www.health.state.mn.us



Adapted with permission from Washington State Department of Health

SUDS UP and AWAY!

1. Wet



2. Make Bubbles



3. Rinse



4. Dry



Remember to make bubbles for as long as it takes you to sing the ABC song.

The 6 Steps of Hand Washing



Palm to palm



The back of the hands



In between the fingers



The back of the fingers



The thumbs



The tips of the fingers

COVER UP COUGHING AND SNEEZING



- Turn your head away from others
- Use a tissue to cover your nose and mouth



- Drop your tissue into a waste bin



- No tissues? Use your sleeve



- Clean your hands after discarding tissue using soap and water or alcohol gel for at least 15 seconds

Appendix 7:

Contact Details for Public Health Offices

For up to date contact details for the HSE Public Health Offices, please visit:

http://www.hse.ie/eng/services/list/5/Public_Health/publichealthdepts/phoffices.html

HSE Region	County	Address	Contact Number
Dublin Mid-Leinster	Dublin/Kildare/Wicklow	Department of Public Health Dr. Steven's Hospital Dublin 8.	Tel. (01)-6352145, Fax. (01) 6352103
	Laois/Offaly/Longford/ Westmeath	Department of Public Health HSE Area Office Arden Road Tullamore, Co. Offaly.	Tel. (057) 9359891 Fax. (057) 9359906 ID Fax. (057) 9359907
Dublin North-East	Cavan, Louth, Meath/ Monaghan	Department of Public Health Railway Street Navan Co. Meath	Tel. (046) 9076412 Fax. (046) 9072325
West	Galway/Mayo/Roscommon	Department of Public Health Merlin Park Galway	Tel. (091) 775200 Fax. (091) 758283
	Clare/Limerick/North Tipperary	Department of Public Health Mount Kennett House Henry Street Limerick	Tel. (061) 483337 Fax. (061) 464205
	Donegal/Leitrim/Sligo	Department of Public Health Iona House, Upper Main St. Ballyshannon Co. Donegal	Tel. (071) 9852900 Fax. (071) 9852901
South	Cork	Department of Public Health St Finbarr's Hospital, Douglas Rd. Cork	Tel. (021) 4927601 Fax. (021) 4923257
	Kerry	Department of Public Health Rathass Tralee, Kerry	Tel. (066) 7184548 ID Fax (066)7184542
	Carlow/Kilkenny/South Tipperary/Waterford/Wexford	Department of Public Health, The Tower, St Canice's Dublin Road Lacken Kilkenny	Tel. (056) 7784142 Fax. (056) 7784599

Appendix 8

Sample Notification Letters to Parents

Below is a selection of letters to parents informing them of certain infectious diseases that, after discussion with your local Department of Public Health, you may find useful to be able to send to parents. If a case appears in your school the letters may help to provide information for parents and to allay anxiety

Sample notification letters to parents for the following conditions are available:

1. Chicken Pox
2. Hand, Foot and Mouth Disease
3. Head Lice/Nits
4. Impetigo
5. MRSA
6. Ringworm
7. Rubella (German Measles)
8. Scabies
9. Scarlet Fever
10. Slapped Cheek Syndrome (Parvovirus B19)
11. Winter Vomiting Disease (Norovirus)/General Gastroenteritis

1. CHICKENPOX

Date: _____

Dear Parent or Guardian,

There has been a case of chickenpox in your child's school and your child may have been exposed. If your child has not had chickenpox before it is quite likely that he/she will catch it.

What is chickenpox?

Chickenpox is a common childhood illness. Fever and cold symptoms are often the first signs of illness and are followed by the appearance of the typical rash. The rash starts as small pink bumps, often around the neck, ears, back and stomach. These develop a little water blister, which in turn becomes yellow and oozy and ultimately crusty as it dries. The rash spreads outwards to involve the whole body finally involving the lower arms and legs. People may have only a few spots or may be virtually covered with them. In children it is usually a relatively mild illness however occasionally complications develop.

Why should I be concerned about chickenpox?

Chickenpox can be a devastating infection in people with a seriously weakened immune system (e.g. patients with leukaemia or after organ transplantation).

In adults, chickenpox is a much more significant illness than in children and there is a greater risk of complications developing. Chickenpox in pregnancy may cause severe illness and, in the early stages of pregnancy, may result in abnormalities in the baby.

What should I do now?

If your child is normally healthy, chickenpox is likely to be a relatively mild illness and no specific precautions are necessary. Symptoms usually develop 10 to 21 days after exposure. The infected person can spread infection for up to three days before the rash appears and until the last pox is crusted and dry.

If your child has a weakened immune system, please contact your child's GP or hospital consultant and let them know that your child may have been exposed.

What should I do if I think my child has chickenpox?

If you suspect chickenpox, do not bring the child into a crowded surgery waiting room, as this may only spread the infection further. Contact your doctor to confirm the diagnosis. Do not use aspirin or any products that contain aspirin to control fever if your child has chicken pox, as this has been associated with the development of a rare but serious disease called Reye's syndrome.

Can my child stay in school?

Many children with chickenpox are too sick to attend school and are more comfortable at home. Children can spread the infection to others as long as there are any spots, which are not crusted and dried. Children with chickenpox should be excluded from school until scabs are dry; this is usually five to seven days after the appearance of the rash. Children with spots that are crusted and dried can safely attend school.

I am pregnant and have been exposed to a child with chickenpox. What should I do?

Most adults in Ireland are immune to chickenpox as they have had the illness in childhood. If you have not had chickenpox illness in the past and have had recent contact with chickenpox you should contact your GP, who may wish to do a blood test to check if you are immune. Chickenpox infection in pregnancy may cause more severe illness and there may be a risk to the foetus.

Thank you for giving this your attention. Your GP will be able to answer any further questions that you might have about chickenpox.

2. HAND, FOOT AND MOUTH DISEASE

Date: _____

Dear Parent or Guardian,

There has been a case of hand, foot and mouth disease within your child's school and your child may have been exposed.

What is hand, foot and mouth disease?

This is a disease caused by a group of viruses which usually affects young children. It causes blisters on hands and feet, and mouth ulcers inside the cheeks and on the tongue. They may also have a sore throat and high temperature. These symptoms last for 7–10 days.

Is it dangerous?

No. All make a full recovery.

Is it the same as foot and mouth disease in cows?

No. A completely different virus causes foot and mouth disease in cows.

How is it spread?

The virus is spread by coughs and sneezes, and is also found in the faeces of infected children. Some children infected with the virus do not have symptoms but can still pass it to others.

Is there any treatment?

There is no specific treatment for hand, foot and mouth disease – it is usually a mild and self-limiting illness. If a child feels unwell paracetamol may help. Antibiotics and creams or ointments for the blisters are not effective. Children recover just as quickly without them.

What is the incubation period?

Symptoms start 3-5 days after exposure to the virus.

How long are children infectious?

Children who are ill are infectious. Also they may carry the virus in their faeces for many weeks after they have recovered and so can continue to pass on infection.

How long should children stay away from school?

Children who are unwell should be kept off school until they are feeling better.

Keeping children off school for longer than this is unlikely to stop the virus spreading. There may be other children in the school who appear well but are spreading the virus.

How can spread be prevented?

Since the virus is found in faeces, scrupulous attention must always be paid to hand washing after using the toilet.

Can you catch it more than once?

Yes, but children who are ill during an outbreak at school or nursery are unlikely to get it again during the same outbreak.

Thank you for giving this your attention. Your GP will be able to answer any further questions that you might have about hand, foot and mouth disease.

3. HEADLICE/NITS

Date: _____

Dear Parent or Guardian,

There has been a case of headlice in your child's school and your child may have been exposed.

What are headlice?

Headlice are little insects with moving legs. They are often not much bigger than a pin head, but may be as big as a sesame seed (the seeds on burger buns). They live on, or very close to, the scalp and don't wander far down the hair shaft for very long. They can only live on humans; you cannot catch them from animals.

What are nits?

Nits are not the same thing as lice. Nits are egg cases laid by lice, stuck on to hair shafts. They are smaller than a pin head and pearly white. If you have nits it doesn't always mean that you have headlice. When you get rid of all the lice, the nits will stay stuck to the hair until it grows out.

How are they spread?

Anyone can pick up headlice. They are most common among young children as they often put heads together during play allowing the lice walk from one head to the next. **Headlice do not reflect standards of hygiene. They are just as willing to live in clean or dirty hair.**

Can you stop them?

The best way is for families to learn how to check their own heads. This way they find any lice before they have a chance to breed. They can then treat them and stop them being passed round the family. The way to check someone's head is called "detection combing". This should be done regularly and in the case of a confirmed infection in one family member, the other members of the household should carry out "detection combing" twice weekly for one week.

How do I do detection combing?

You need a plastic detection comb, good lighting and an ordinary comb.

- Wash the hair well, then dry it with a towel. The hair should be damp, not dripping. A small amount of conditioner may help if the hair is tangled.
- Make sure there is good light, daylight is best.
- Comb the hair with an ordinary comb.
- Start with the teeth of the detection comb touching the skin of the scalp at the top of the head.
- Draw the comb carefully towards the edge of the hair.
- Look carefully at the teeth of the comb in good light.
- If there are headlice, you will find one or more lice on the teeth of the comb. A magnifying glass may be useful in identifying lice.
- Do this over and over again from the top of the head to the edge of the hair in all directions, working round the head.
- Do this for several minutes. It takes 10 to 15 minutes to do it properly for each head.

Who needs treatment?

Only treat those who have living, moving lice. If more than one family member has lice, treat all those at the same time.

How do I treat them?

A headlice lotion (not shampoo) should be used. Ask your local pharmacist, public health nurse or GP which lotion to use, and how long to leave it on. Follow the instructions that come with the particular product.

- Repeat treatment again seven days later, in the same way, with the same lotion.
- Check all heads a day or two after the second treatment. If you still find living, moving lice, ask your public health nurse or GP for advice.

4. IMPETIGO

Date: _____

Dear Parent or Guardian,

There has been a suspected case of impetigo in your child's school and your child may have been exposed. Although impetigo is not usually a serious condition, it is very infectious, and if not treated promptly complications may occasionally occur.

What is impetigo?

Impetigo is a bacterial infection of the skin caused by the same bacteria that commonly cause sore throats i.e. group A streptococci, although it can also be caused by *Staphylococcus aureus* or a mixture of the two. It can cause small blisters on the skin which break and become covered with a yellow crust. Impetigo commonly affects the hands and face although it can spread to other parts of the body especially if the skin is broken.

Who catches impetigo?

Anyone can catch impetigo, but most cases occur in crowded environments e.g. in children in schools.

How is impetigo spread?

Impetigo is usually spread by direct contact with someone who is infected or indirectly by sharing towels, face cloths, clothes or toys that have been used by someone who is infected. The bacteria are present in the skin lesions. Secretions from the rash/sores are infectious. Hands that touch the rash/sores can become contaminated and can pass the infection to other body sites or other people.

How is impetigo diagnosed?

Impetigo can usually be diagnosed by simply looking at it. If you suspect your child has impetigo, you should attend your GP for confirmation and treatment.

How is impetigo treated?

Your GP will usually prescribe an antibiotic ointment. Sometimes, if the rash is more extensive or is spreading rapidly, an oral antibiotic will be needed.

Should children with impetigo be excluded from school?

Children diagnosed with impetigo should remain out of school until the sores have stopped blistering or crusting, or until 24 hours after starting appropriate treatment.

How can you stop the spread of impetigo?

- All cases of impetigo should be treated appropriately and promptly.
- Good personal hygiene is important in preventing infection. Children and household members should be encouraged to wash their hands frequently especially after touching the rash/sores or applying skin ointment. Fingernails should be kept short.
- Children with impetigo should be discouraged from touching the sores/rash to prevent further spread.
- Cuts and scratches should be kept clean and any conditions that involve broken skin, e.g. eczema, should be treated promptly.
- Towels and face cloths should not be shared.

Your GP will be able to answer any further questions you may have on impetigo.

5. METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA)

Date: _____

Dear Parent or Guardian,

What is MRSA?

Staphylococcus aureus is a type of bacteria (germ) that is often found on the skin and in the nose of healthy people. Most people who carry staphylococcus on their skin or in their nose (about one in three people) will not suffer any ill effects. People who carry these bacteria on their skin or in their nose without showing any signs or symptoms of infection 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. A few people however, may develop more serious infections such as septicaemia, also known as a 'bloodstream infection', especially people who are already ill in hospital or who have long term health problems.

How is *Staphylococcus aureus* (including MRSA) spread?

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), but it can also be spread by touching items used by an infected person e.g. soiled dressings.

Should children with *Staphylococcus aureus* (including MRSA) be excluded from school?

Children known to carry *Staphylococcus aureus* (including MRSA) on the skin or in the nose do not need to be excluded from school.

Children 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.

How can you prevent spread?

The main ways to prevent infection are to wash your hands and care for wounds properly.

- Hand washing with soap and running water is the most effective way to prevent the spread of infection.
- Keep cuts and scrapes clean and covered until healed; watch for signs of infection, such as pus, redness, warmth and swelling.
- Do not share personal items e.g. towels, facecloths, flannels, bedding and clothes.
- Cover infected wounds with clean dressings.
- If a dressing needs to be changed in 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 it in a domestic waste bin.

Useful information on MRSA can be found at <http://www.hpsc.ie/hpsc/A-Z/MicrobiologyAntimicrobialResistance/EuropeanAntimicrobialResistanceSurveillanceSystemEARSS/ReferenceandEducationalResourceMaterial/SaureusMRSA/>

6. RINGWORM

Date: _____

Dear Parent or Guardian,

There has been a case of ringworm within your child's school and your child may have been exposed.

What is ringworm?

Ringworm is a fungal infection of the skin that can affect different parts of the body. How it looks depends on where it is. On the skin it presents as a roughly circular, scaly, itchy rash. Sometimes there may be small blisters and even pus filled spots. It can involve the nails, causing them to thicken and discolour. On the scalp it often starts as a small bump, gradually spreading outwards and is associated with hair loss. On the feet there may be cracking between the toes.

What should I do now?

As ringworm spreads through skin contact or through contact with infectious skin flakes shed into clothes or the environment, it can easily spread within a school. It is important that you check your child's skin and hair for the presence of any suspicious lesion.

What should I do if I think my child has ringworm?

If you see any suspicious areas on your child's skin or scalp, bring the child to your GP. The GP will be able to decide by looking at it directly, by examining it with special light, or by examining some skin cells under the microscope whether or not it is ringworm. Once the diagnosis is made treatment can be given. It is important that the rest of the family are checked for ringworm. Also check and treat symptomatic pets.

Can my child stay in school?

Yes. However, to prevent the spread of infection to others it is important that the affected child receives appropriate treatment.

Thank you for giving this your attention. Your GP will be able to answer any further questions that you might have about ringworm.

7. RUBELLA (GERMAN MEASLES)

Date: _____

Dear Parent or Guardian,

There has been a case of rubella within your child's school and your child may have been exposed. MMR (measles, mumps, rubella) vaccine is given at 12 months of age and as a preschool booster at 4-5 years. If your child received two MMR vaccines the chance of him/her developing rubella is extremely low. If, however, your child has not been vaccinated then it is quite possible that he/she might get rubella.

What is rubella?

Rubella is a mild viral illness that causes little problem for children. In childhood it causes a mild flu like illness with mild swelling of the glands, particularly those at the back of the neck, and a fine pinkish red rash. In addition adults can develop painful joints (arthritis).

Why should I be concerned about rubella?

If a pregnant woman develops rubella in the early stages of pregnancy her unborn baby may also be infected and the consequences can be devastating. Rubella infection in the unborn can cause severe developmental delay, eye defects, hearing problems and a wide variety of congenital abnormalities.

Who gets rubella?

Anyone who is not immune to it and who has contact with someone with rubella can get rubella. People who have either received rubella vaccine (part of the MMR) or who have had rubella should be immune. A simple blood test can tell whether or not you are immune to it. As many viral illnesses are similar to rubella, and are often mistaken for it, you cannot consider yourself immune unless you have had the blood test or been vaccinated with the rubella or MMR vaccine.

What should I do now?

If you and your child have received rubella vaccine or you have been tested and know that you are immune, there is no need for concern. If your child has not received MMR vaccine, bring them to your GP for vaccination. The vaccine will not protect them if they have been exposed this time, but it will protect them from future exposures. If you are pregnant or likely to become pregnant, please contact your GP and find out whether or not you are immune to rubella. If you are not immune (and are not pregnant) you should contact your GP and arrange to get the vaccine.

What should I do if I think my child has rubella?

If your child develops a flu-like illness, with a fine red rash and swelling of the glands behind the ears, arrange for your doctor to see the child. He will be able to tell you if it looks like rubella and will advise you what to do. If you suspect rubella, do not bring your child into a crowded surgery waiting room, as this may only spread the infection further. There is no treatment for rubella and symptoms resolve over a few days.

Can my child stay in school?

Children with rubella must stay at home until at least seven days after the appearance of the rash.

Thank you for giving this your attention. Your GP will be able to answer any further questions that you might have about rubella and the MMR vaccine.

8. SCABIES

Date: _____

Dear Parent or Guardian,

There has been a case of scabies within your child's school and your child may have been exposed. We are bringing this to your attention because scabies can spread rapidly unless all affected children are promptly treated.

What is scabies?

Scabies is an infestation of the skin with a tiny mite smaller than a pinhead. The mites burrow anywhere in the skin, mostly on hands, and cannot be seen. The rash is caused by the body's reaction to the mite and the scratching that occurs.

How could my child get scabies?

Anyone can get scabies. The mite passes from person to person through skin contact. Scabies is unlikely to be caught by short contact such as shaking hands. Longer contact is needed but could be as little as 5 to 10 minutes. Children playing together are especially likely to pass it from one to the other. The itching may occur anytime from two to eight weeks after catching the mites, so mites can pass to someone else before the rash appears.

How will I know if my child has scabies?

If your child develops an itchy rash bring them to their doctor.

What should I do if my child has scabies?

A variety of special lotions and creams that kill mites are available at the pharmacy. It is best to see your doctor first to be sure that it is scabies. It is important to follow the instructions that come with the lotion carefully, as there are a number of different preparations available. As spread within households is common, it is a good idea to treat all family members at the same time even if there are no symptoms

Thank you for giving this your attention. Your GP or pharmacist will be able to answer any further questions that you might have concerning scabies and the preparations available to treat it.

9. SCARLET FEVER

Date:

Dear Parent or Guardian,

There has been a case of scarlet fever within your child's school and your child may have been exposed.

What is scarlet fever?

Scarlet fever is a scattered red rash and high temperature caused by bacteria (Group A streptococci). Occasionally these bacteria can cause kidney or heart complications. Prompt treatment with an antibiotic usually prevents these complications. Treatment will also prevent spread to others.

What are the symptoms of scarlet fever?

A scattered red rash that is often most marked in the creases of the joints and over the stomach. It usually blanches (goes white) when pressed on. The skin may feel rough to the touch, sometimes described as feeling like sandpaper. Someone with scarlet fever will have evidence of a streptococcal infection somewhere, usually in the throat or sometimes in the skin.

What should I do if I think my child has it?

If your child develops any of these symptoms bring him/her to your GP for examination. Tell the doctor that another child in the school has scarlet fever.

If my child has scarlet fever what should I do?

The doctor will prescribe an antibiotic for your child. It is important that your child takes the full course of medicine.

Can my child stay in school?

Your child can return to school when he/she is well and has finished one full day of antibiotic treatment.

What can I do to prevent spread of infection at home?

The bacteria are spread through contact with nose and mouth secretions so:

- Wash hands thoroughly after wiping nose.
- Wash hands thoroughly before preparing food.
- Wash dishes well in hot soapy water.
- Do not share cups, straws, spoons, eating utensils etc.
- Do not share toothbrushes.

Thank you for giving this your attention. Your GP will be able to answer any further questions that you might have concerning scarlet fever.

10. SLAPPED CHEEK SYNDROME (PARVOVIRUS B19)

Date:

Dear Parent or Guardian,

There has been a case of slapped cheek syndrome (sometimes called Fifth Disease) which is caused by the parvovirus B19 virus in your child's school and your child may have been exposed.

What is "Slapped Cheek Syndrome"?

It is a mild rash illness that occurs most commonly in children. The ill child typically has a 'slapped-cheek' rash on the face and a lacy red rash on the trunk and limbs. Occasionally, the rash may itch. An ill child may feel unwell and have a low-grade fever or a 'cold' a few days before the rash breaks out. The child is usually not very ill, and the rash resolves in 7 to 10 days.

Can adults get parvovirus B19 infection?

Yes, they can. An adult who is not immune can be infected with parvovirus B19 and either have no symptoms or develop the typical rash of slapped cheek syndrome, joint pain or swelling, or both. The joint pain and swelling usually resolve in a week or two, but may last longer. However, most adults have previously been infected with parvovirus B19 and have developed life-long immunity to the virus and cannot become infected again.

Is parvovirus B19 infectious?

Yes. A person infected with parvovirus B19 is infectious during the early part of the illness, before the rash appears. By the time a child has the characteristic 'slapped cheek' rash he/she is probably no longer contagious.

How does someone get infected with parvovirus B19?

Parvovirus B19 has been found in the respiratory secretions (e.g. saliva, sputum, or nasal mucus) of infected persons before the onset of a rash, when they appear to "just have a cold". The virus is probably spread from person to person by direct contact with those secretions, such as sharing cutlery, cups, drinks, drinking glasses etc.

Is parvovirus B19 infection serious?

Parvovirus B19 is usually a mild illness that resolves on its own. Parvovirus B19 infection may cause a serious illness in persons with chronic red blood cell disorders (e.g. sickle cell anaemia or spherocytosis) or a weakened immune system. Rarely, serious complications may develop from parvovirus B19 infection during early pregnancy.

Can parvovirus B19 infection be prevented?

There is no vaccine or medicine that prevents parvovirus B19 infection. Frequent hand washing is recommended to decrease the chance of becoming infected. People should also avoid sharing cutlery, cups, drinks, drinking glasses etc.

Should children with parvovirus be excluded from school?

Excluding pupils with slapped cheek syndrome from school is not likely to prevent the spread of the virus. People are infectious before they develop the rash and it becomes clear that they have slapped cheek syndrome. Cases of slapped cheek syndrome in a school most commonly happen when the infection is spreading in the community.

I am pregnant and have been exposed to a child with parvovirus B19. What should I do?

You should contact your doctor, who may wish to do a blood test. Usually, there is no serious complication for a pregnant woman or her baby if exposed to a person with slapped cheek syndrome. Most women are already immune to parvovirus B19, and these women and their babies are protected from infection and illness. Even if a woman is susceptible and gets infected with parvovirus B19, she usually experiences only a mild illness. Likewise, her unborn baby usually does not develop any problems due to parvovirus B19 infection. However, sometimes parvovirus B19 infection may cause miscarriage or severe anaemia in the unborn baby. There is no evidence that parvovirus B19 infection causes birth defects or developmental delay.

11. NOROVIRUS (WINTER VOMITING DISEASE)

Date:

Dear Parent or Guardian,

There have been cases of norovirus (winter vomiting disease) within your child's school and your child may have been exposed.

What is winter vomiting disease?

A virus known as norovirus causes winter vomiting disease. The virus usually causes short-lasting outbreaks but is very contagious. The infection has caused many outbreaks in the community and in health care settings in recent years.

What are the symptoms of winter vomiting disease?

Symptoms can include:

- Nausea (often sudden onset)
- Vomiting (often projectile)
- Crampy abdominal pain
- Watery diarrhoea
- High temperature chills and muscle aches.

Symptoms begin around 12 to 48 hours after becoming infected. The illness is usually brief, with symptoms lasting only about 1-2 days. However, illness may be prolonged in some people (usually the very young or elderly). In more severe cases it may cause dehydration and require hospital treatment.

If you have any specific concerns about your child you should contact your GP.

How is winter vomiting disease spread?

People can become infected with the virus in several ways, including:

- Contact with an infected person, especially contact with vomit or faeces.
- Contact with contaminated surfaces or objects and then touching eyes, nose or mouth.
- Consuming contaminated food or water.

What can be done to prevent infection?

It is often impossible to prevent infection; however, taking good hygiene measures around someone who is infected can decrease your chance of getting infected.

- Wash hands frequently including before eating or preparing food and after toilet use.
- Thoroughly clean and disinfect contaminated surfaces immediately after an episode of vomiting or diarrhoea by using a bleach-based household cleaner.
- Flush or discard any vomit and/or faeces in the toilet and make sure that the surrounding area is kept clean.

Are noroviruses contagious?

Noroviruses are very contagious and can spread easily from person to person. Both faeces and vomit of an infected person contain the virus and are infectious. People infected with norovirus are contagious from the moment they begin feeling ill to two to three days after recovery. Some people may be contagious for as long as two weeks after recovery.

It is important for people to use good hand washing and other hygienic practices after they have recently recovered from a norovirus infection. In addition, noroviruses are very resilient and can survive in the environment (on surfaces etc.) for a number of weeks. Therefore it is important that surfaces and objects that may have become contaminated are cleaned thoroughly.

Can my child stay in school?

It is extremely important that people who have been ill with vomiting or diarrhoea **should remain off school or work while symptomatic and for two full days after their last episode of vomiting or diarrhoea.**

Thank you for giving this your attention. Your GP will be able to answer any further questions that you might have about winter vomiting disease.

