Infection Control Guidelines

for

Schools and Child Care Centres

Second Edition

2012

Contents

Introduction

The purpose of the infection control guideline is to assist schools to prevent or minimise the spread of infectious diseases to staff, students and others. Spread of infectious diseases requires a source of infection, a route of mode of spread and a host-person capable of acquiring the illness or disease. Most infectious diseases are spread by a single, well-defined route.

Routes of mode of spread include:

(a) Droplet - When infected people sneeze, cough or talk, germs can spread by way of respiratory droplets. Hands and other surfaces soiled with nasal and throat discharges are often responsible for the spread of disease. Examples of infectious diseases spread by droplet mode of spread include: common cold, influenza, parvovirus B19, measles, mumps, rubella and pertussis (whooping cough).

(b) Airborne – This occurs when bacteria or viruses have the ability to remain suspended in the air and be borne by air currents e.g. after sneezing. Examples of infectious diseases spread by airborne mode of spread include chickenpox, tuberculosis.

(b) Faecal-oral – Some viruses, bacteria and parasites are spread by this route. In these cases they are present in the faeces of infected people and may be passed directly from soiled hands to others either directly to the mouth or indirectly via objects, surfaces or food. The sites most commonly contaminated with faeces are hands, floors, tap handles, toilet areas (e.g. flush handles/buttons) handrails, door handles and tabletops. Examples of infectious diseases transmitted via the faecal-oral route are bacterial and viral gastroenteritis, giardia, hepatitis A, *Salmonella*,

Shigella and a variety of intestinal viruses including Enteroviruses that cause hand, foot and mouth disease.

(c) Contact - Some diseases can be spread directly via skin-to-skin contact, or indirectly by contact with contaminated objects or surfaces. Such spread can occur with impetigo (skin boils or sores), ring worm, scabies and head lice.

(d) Vector - Some viruses are spread by insect-to-blood contact through mosquito bites such as dengue, malaria, Japanese encephalitis.

(e) Blood or blood products - Some diseases, such as AIDS, caused by the human immunodeficiency virus (HIV), hepatitis B and hepatitis C are spread through blood or blood products. Mode of spread can occur when infected blood or blood products enters another person through broken skin, mucous membranes of the eyes, nose and mouth. It has been noted that such diseases can spread via needle-stick injuries if the needle is still infectious with a blood borne organism.

(f) Urine – Urine can carry infectious organisms. Hands, objects or surfaces that have been soiled by urine from an infected person can enable the spread of infection, such as cytomegalovirus (CMV).

Standard Precautions

Standard Precautions are to be adopted at all times. Standard precautions are work practices that assume that all blood and body fluids are potentially infectious. These precautions should be used as a first-line approach to preventing infection and should be adopted for contact with all blood and body fluids. Gloves are worn to prevent contact with non-intact skin, moist mucous membranes, and body fluids; masks and eye protection are worn when there is a chance of splashing body fluids into the eyes, nose or mouth; gowns are worn if there is a chance that clothing may become soiled with body fluids. Precautions also include proper disposal of contaminated equipment and good hand washing practices

In summary, the precautions include:

1. Good hygiene practices, including hand washing
2. Use of personal protective equipment (PPE)
3. Appropriate handling and disposal of sharps and other infectious waste
4. Appropriate cleaning and disinfection of contaminated items.

Good hygiene practices include:

Hand washing

a. Hand washing is one of the most important measures in preventing mode of spread of infection.
b. Mild liquid soap should be available at hand basins. Antiseptic soaps are not necessary and may irritate some skin types. Liquid soap dispensers should be fitted in preference to bars of soap.
c. Paper towels or air dryers should be available at hand basins for drying hands and in other relevant *areas for* general drying and cleaning. Clean fabric cloths, towels or rags may be used in place of paper towels for *single-use* drying or

cleaning. Individual cloth towels may be provided for students in some settings, such as prep/childcare, provided these are laundered regularly and not shared between students. Communal cloth towels should not be used.

d. A copy of the picture on Hand Washing Technique (Appendix A) should be laminated or placed in a plastic sleeve and placed on the wall adjacent to washing facilities.

e. Hands should be washed using soap and water and then dried:
    - before handling, preparing or eating food
    - before and after assisting students with eating/meals
    - before and after assisting students with toileting
    - before and after providing first aid or medication
    - before and after touching an ill or injured person
    - after touching blood or body fluids
    - after removal of protective gloves
    - after using the toilet; and
    - after touching animals.

f. Alcohol-based hand rubs can be used routinely however the safety issues, including flammability, skin reaction and student access to the product (i.e. ingestion) must be considered. Further, hands must be clean (free of debris) if hand rubs are to be effective for infection control. Alcohol-based hand rubs may also be used in emergency or field situations (such as excursions, camps or off-campus activities) where hand washing facilities are limited or not available.

Footwear

Staff, students and others must wear footwear that is appropriate for the activity they are undertaking.

Wounds

Keep wounds covered (e.g. with a water-resistant dressing).

Personal Protective Equipment (PPE), Facilities and Materials

The use of personal protective equipment (PPE), facilities and materials is required to prevent or minimise the spread of infection, illness and disease. The following PPE, facilities and materials should be readily available in the workplace, particularly in food preparation, first aid, and special and physical education areas:

1. Hand-basins in or near toilet facilities, first aid and food preparation areas.
2. Disposable gloves and plastic aprons for all situations involving contact with blood and body fluids (Gloves should be powder-free latex or vinyl). Food handling type gloves do not provide adequate protection. Disposable gloves are for single-use only and are not to be re-used.
3. Waste handling equipment e.g. a pair of sturdy tongs for handling potentially infectious waste.
4. Leak-proof sealable plastic bags for disposal of potentially infectious waste.
5. Rigid-walled, puncture-resistant container such as a sharps container for disposing of “sharps” e.g. used needles or syringes (Sharps disposal kits containing a small sharps container, disposable gloves and band-aids, plastic disposable tweezers, and an antiseptic cleaning tissue, may be purchased. Note that plastic tweezers are not recommended for handling used needles and syringes as these can cause the sharp to flick and cause injury).
6. Refuse disposal bins containing a sealable plastic lining.
7. If there is a risk of discarded needles and syringes; leather or puncture-resistant gloves should be provided to at-risk staff such as school cleaners, and Schools Officers (Facilities and Grounds).

Relevant PPE, facilities and materials should be used during the following:

1. Handling or preparing food (to avoid latex contamination of food, do not use latex gloves for food handling and preparation).
2. Administering or assisting with first aid or medication (First aid staff, facilities and equipment should be provided in accordance with the relevant departmental procedure for first aid.)
3. Assisting a student to change clothing soiled with blood or body fluids (including excreta such as urine and faeces), use the toilet to change sanitary pads and soiled clothing.
4. Assisting a student in feeding involving potential contact with saliva.
5. Administering medication into the gastrostomy tube feeding or rectal valium such as gastrostomy tube feeding or rectal valium.
6. Handling or disposal of potentially infectious waste such as when cleaning and disinfecting blood or body fluid spills.
7. Emptying or disposal of containers of potentially infectious waste such as rubbish or soiled dressings.
8. On playground duty, bus duty or similar work activity, it is recommended that staff carry a pair of disposable gloves in case they need to attend to an ill or injured student.
9. If general waste is to be picked up it is recommended that gloves and waste collecting equipment (e.g. a pair of sturdy tongs) be used to protect against injury from concealed sharps and to prevent direct contact with soiled items such as used tissues.

Cleaning and Disinfection

Adequate cleaning and sanitizing in childcare settings will help prevent mode of spread. Proper cleaning reduces the number of germs or microorganisms available to cause illness or infection. In order for a disinfectant to work properly, a dirty surface should first be cleaned with a detergent and water solution, and then disinfected. Disinfectants will not work properly without first removing the gross contamination or soil.

S/No.	Item & recommendations	Dilution guide	Remarks
1	<u>Communal toys</u> Communal toys that are shared between 'children'	Disinfect at least daily or at the end of every session.	The used toys should be segregated in an empty basin that is out of the children's reach until disinfected and dried.
(a)	Any toy that is contaminated by saliva, stool, blood or body fluids.	Wash with soap and water and wipe with antiseptic wipes before being handled by other children.	Toys that are allowed: Washable toys, toys with hard surfaces that can be easily disinfected by wiping with antiseptic wipes. Diapered children should be given only washable toys.
(b)	All washable toys should be cleaned daily.		Individual toys belonging to the 'child' are to be cared for by his/ her own family. These toys are not shared with other 'children' and are to be kept with the patient. Toys that are brought from home should not be shared with other children.
(c)	Immersible toys are toys with no moving parts, no hollow spaces and a non-porous surface and they will not soak up water into closed cracks or spaces (e.g. stacking cups, Lego blocks).	Disinfect as follows: a) immerse in warm soapy water, wash surfaces, rinse in clean water and dry. Disinfect by submerging in household bleach diluted 1part of bleach with 50 parts of water and air dry	

S/No.	Item & recommendations	Dilution guide	Remarks
		OR b) Wipe surface of toy thoroughly using alcohol impregnated wipe	
(d)	Non-immersible toys – toys with inside spaces, small openings or hinges (e.g. robots, cars) or are too large to be immersed (e.g. slides, castles).	Wipe surface of toy thoroughly using alcohol impregnanted wipe (e.g. mediwipe). Clean all the nooks and crannies.	
(e)	Uncleanable toys – toys that can soak up water and are damaged by immersion (e.g. games, soft books, puzzles, activity books, crayons, stuffed toys). Use is discouraged.	NA	Use is discouraged
(f)	Board games are allowed provided the parts can be easily disinfected. Cards / false money e.g. Monopoly etc should be laminated to allow for easy disinfection.		
(g)	Toys that are not allowed: Stuffed toys (unless disinfected by high temperature washing), toys that resemble food items (as children will be more inclined to place them in their mouths) or non-washable toys.	NA	Such items are prohibited
2	Utensils and milk bottles	Used milk bottles and teats are to be washed and sterilized, using the sterilizer, immediately after use.	Sterilization of utensils, teats and milk bottles
3	Soiled clothing	Soiled clothing should be placed into a separate pail which should not be used for any other purpose. The pail should be stored in a designated place. This pail should be disinfected after each use.	Clothing soiled with urine or stool is to be rinsed at the centre. It should be done in a pail designated or this purpose in the centre. The soiled clothing should be packed in plastic bags to minimize exposure

S/No.	Item & recommendations	Dilution guide	Remarks
			of staff and children to disease-carrying agents. Hands should be washed after handling soiled clothing.
4	Diaper-changing areas	Disinfect with a solution of household bleach diluted 1 part of bleach with 10 parts water.	Diaper-changing surfaces should be sanitized between uses. Alternatively, the diaper changing surface should be covered with disposable paper pads, which are discarded after each use. If the surface becomes wet or soiled, it should be cleaned and sanitized.
5	Potty chair – the use of potty chairs should be discouraged. However, if used, potty chairs should be emptied into the toilet, cleaned in a utility sink, and disinfected after each use.	Disinfect with a solution of household bleach diluted 1 part of bleach with 50 parts of water in a utility sink. After 2 minutes contact time with the bleach, rinse and dry.	
6	<u>General Surfaces</u> Floor, low shelves, doorknobs and other surfaces often touched by diapered children	Wash and disinfect daily with household bleach diluted 1 part of bleach with 50 parts of water.	The disinfecting cloth should not be washed in a sink used for washing hands. If it is, all surfaces of the sink should be properly cleaned and disinfected with diluted household bleach (1 part bleach with 50 parts water) after use.
7	Centre premise and toilets	Wash and disinfect daily with household bleach diluted 1 part of bleach with 50 parts water	Clean and disinfect 2 to 3 times throughout the day to provide a clean and safe environment.
8	Mattress covers	Warm water and detergent	Should be used only by a single child and should be cleaned and sanitized before being assigned to another child.
9	Bedding sheets and blankets	Warm water and detergent	Should be assigned to each child and cleaned and sanitized when soiled or wet.

S/No.	Item & recommendations	Dilution guide	Remarks
10 (a)	Cleaning of Horizontal Surfaces Uncarpeted floors and other frequently touched horizontal surfaces (e.g. tables, door knobs)	Clean regularly and if spills occur.	
(b)	Carpeting	Vacuum regularly & cleaned if spills occur and given a shampoo whenever a thorough cleaning is indicated.	
11	Toilet & bathroom facilities	Clean toilet twice daily and disinfect highly touched areas e.g. taps, door handles, toilet seat with their antiseptic solution after cleaning. Wipe down also high touched surfaces (e.g. table surfaces and shared toys) with antiseptic solution.	
	For surfaces in bathroom like faucet handles and toilet seats	Wash and disinfect with diluted household bleach (1 part of bleach with 50 parts of water) at least once a day.	
	Surfaces that infants and young toddlers are likely to touch	Wash daily and disinfected with diluted household bleach (same dilution).	
13	Cleaning Walls, Blinds and Curtains	Routine daily cleaning of walls, blinds and curtains are not recommended unless visibly soiled.	

Handling and Disposal of Infectious Waste

Appropriate handling and disposal of potentially infectious waste is very important in preventing or minimising the spread of infection, illness and disease. When cleaning and disposing of potentially infectious waste such as blood or body fluids, or items containing these products, such as bloodstained items or soiled clothing, the following steps should be taken:

- Wear disposable powder-free latex or vinyl gloves, and a plastic apron if necessary.
- For blood and body fluid spills, absorb the bulk of the spill with disposable materials such as paper towels. Special care should be taken if waste contains sharp materials such as broken glass. Sharp material should be picked up with sturdy tongs, and wrapped securely in several layers of newspaper or put into a puncture-resistant rigid-walled container such as a sharps container.
- Clean the spill with warm water and detergent.
- After cleaning, disinfect the area with a freshly prepared solution of 1:10 diluted 5% household bleach and leave to dry. For small spills (e.g. spots of blood) an alcohol wipe may be sufficient
- Wash cleaning equipment such as mops and buckets with warm water and detergent and store dry.
- Remove and dispose of gloves and other waste such as paper towels into a sealable plastic bag. Dispose of the sealed plastic bag in general waste. Wash hands thoroughly with soap, water and dry with paper towels. Refer to the pictorial Hand Washing Technique (Appendix A).
- If the spill is on the carpet, clean with a neutral detergent and arrange for the carpet to be cleaned with an industrial cleaner as soon as possible.
- Granular formulations that produce high chlorine concentrations can be used to contain the spill and prevent airborne contaminants. School cleaning

supervisors may assist in recommending products that are available from chemical suppliers.

- If staff or students inadvertently find potentially infectious waste items, such as used needles and syringes on school grounds, they should immediately inform relevant staff. Where possible, a responsible person should remain with the item while another retrieves appropriate handling and disposal equipment. No attempt should be made to recap, break or bend the needle as this is a common cause of injury.
- If a needle-stick or other injury involving exposure to blood or body fluids occurs during handling and disposal of potentially infectious waste, the person should be medically assessed as soon as possible.

Immunisation and Schedule

Vaccines contain antigens or parts of antigens that cause diseases, but the antigens in vaccines are either killed or weakened. When they are injected into our bodies, the vaccine antigens cause the immune system to produce antibodies against them but do not produce the disease. This is known as immunity. Most infants and toddlers have received all the recommended vaccines by the age 2 years.

National Childhood Immunisation Schedule

Age	**New Schedule (wef Jan 2008)**	**Immunisation Agent**
At birth	BCG Hepatitis B – 1st dose	**BCG** Tuberculosis
1 mth	Hepatitis B – 2nd dose	
3 mths	DPT/DT – 1st dose Oral Sabin – 1st dose PCV – 1st dose	**DPT** Diphtheria, Pertussis & Tetanus
4 months	DPT/DT – 2nd dose Oral Sabin – 2nd dose	**DT** Diphtheria & Tetanus
5 mths	DPT/DT – 3rd dose Oral Sabin – 3rd dose PCV – 2nd dose	
5-6 mths	Hepatitis B – 3rd dose **	
1-2 years	MMR – Primary dose (1st dose) PCV - booster	**MMR** Mumps, Measles & Rubella
18 mths	DPT/DT – 1st booster Oral Sabin – 1st booster	
6-7 years (Primary 1)	Oral Sabin – 2nd booster MMR – Booster (2nd dose)	**Sabin** Poliomyelitis
10-11 years (Primary 5)	DT-containing vaccine – 2nd booster ## Oral Sabin – 3rd booster	

11-12 years (Primary 6)		

PCV – pneumococcal conjugate vaccine

** 3rd dose of Hepatitis B vaccination can be given with the 3rd dose of DPT and Oral Sabin for the convenience of parents.

Can use either:

- Diphtheria-tetanus vaccine; or
- Combined tetanus, reduced diphtheria and acellular pertussis vaccine

Note: Please refer to HPB's website for updates: http://www.nir.hpb.gov.sg

Infectious Diseases

Chickenpox

Causative agent: Varicella zoster virus (VZV) is a herpes virus closely related to Herpes simplex virus.

Signs and symptoms

Chickenpox is the primary infection with VZV. It usually occurs in children less than 10 years of age, although it may occur in older children and adults. Incubation period is between 14-21 days.

Symptoms include an itchy rash that begins as maculopapular lesions and rapidly progress to vesicles, pustules and crust. The more severe the infection, the greater the number of skin lesions. Fever associated with chickenpox can last 5 days. Complications include bacterial superinfection of the skin lesions, varicella pneumonia and encephalitis (brain infection).

Zoster is a secondary infection with VZV. It occurs only in persons who have a previous varicella infection.

Mode of spread

The major sources of VZV are the respiratory tract and moist skin lesions. Individuals who have not previously been infected with VZV are at the risk to develop varicella following exposure to someone with either varicella or zoster.

The VZV is spread by the airborne route and person-to-person contact. The disease is transmissible 1 to 2 days prior to the development of rash and remains so until the

skin lesions have crusted (within 5 to 7 days). The diagnosis of varicella can be made on clinical grounds.

Immunity to VZV can be confirmed by blood tests showing the presence of VZV Ig G antibody.

Treatment

Oral acyclovir should be started within 24 hours after onset of rash. Acyclovir shortens the duration of illness by about one day. The adult dose is 800mg five times a day for 5 days. Oral acyclovir is not recommended for routine use in otherwise healthy children.

Prevention

A live attenuated varicella vaccine is licensed for use in children over the age of 12 months and adults who are susceptible to chickenpox (2 doses, 4 to 8 weeks apart). Varicella vaccine can provide protection to non-immune staff who are exposed to chickenpox, if given within 3 days of exposure.

However, women who are pregnant and those with severely weakened immune systems should not receive varicella vaccine. If non-immune staff who are pregnant or immunocompromised are inadvertently exposed to varicella, they can still receive post-exposure immunoglobulin (VZIG) if given within 3-4 days of exposure.

Children with acute natural chickenpox should not attend day care or preschool until all the lesions have crusted.

Hand, Foot and Mouth Disease (HFMD)

HFMD is a viral infection caused by a group of enteroviruses and is most commonly caused by the Coxsackie virus.

Signs and symptoms

- Fever
- Sorethroat
- Rash (flat or raised spots) or small blisters on palms of hands, soles of feet, or buttocks.
- Mouth ulcers on the inside of the mouth or sides of the tongue
- Poor appetite
- Lethargy

Mode of spread

It is easily spread from one person to another by droplet, saliva as well as by coming in contact with fluid from inside the blisters. It can also be in faeces for up to several weeks after being infected

Incubation period

The incubation period of HFMD is 3 to 5 days. Symptoms usually start 3 to 7 days after catching the infection. Symptoms can last between 7 to 10 days.

Infectious period

A child infected with HFMD is contagious throughout the duration of the illness. They cease to be contagious when their illness resolves.

Prevention

All centres must maintain high standards of personal and environmental hygiene to minimise the risk of HFMD transmission.

1. The overall health of the children should be checked daily upon arrival at the childcare centre. Children with any unusual symptoms or behaviour should be removed from the child care centre for further assessment. This is an important measure in preventing the mode of spread of infectious diseases to other children.

2. Children with HFMD should stay at home, away from school, child care, playgroup, kindergarten and crowded public places until the fluid in the blisters has dried. During this period, contact with other children should be avoided until the child recovers.

3. Both staff and children must wash their hands frequent enough to maintain their hands in a clean state.

3.1 Handwashing

Staff and children should follow the following recommended handwashing procedures to reduce the risk of disease mode of spread in the centres

- Use liquid soap and running water;
- Run hands vigorously as they are washed for at least 10 seconds;
- Wash all surfaces, including back of hands, wrists, between fingers and under fingernails;
- Rinse hands well after washing;
- Dry hands with single-use towel

Staff should wash their hands:

- When they come to the centre in the morning;
- Before they prepare or serve food;
- After they change diapers, clean up or wipe the nose of a child;
- After contact with blood or body fluids such as fluids from the nose, mouth and chest as well as from inside the blisters ;
- After they have been to the toilet, either with a child or by themselves;
- After handling pets, pet cages, or other pet objects;
- After outdoor activities (e.g. playing with children in the playground);
- Before giving or applying medication or ointment to a child or self;
- Before going home

Children should wash their hands:

- When they arrive at the centre;
- Before they eat or drink;
- After they use the toilet;
- After they come into contact with a child who may be sick;
- After having their diapers changed;
- After playing on the playground;
- After handling pets, pet cages, or other pet objects;
- Before going home

4. Do not share food, utensils, drinking cups, toothbrushes or towels with other children.

5. Proper disinfection of articles such as toys, eating utensils and towels contaminated by droplet, saliva, vesicular fluid or faeces of infected cases

6. Communal Toys

- Toys or appliances that are contaminated by nasal or oral secretions should be cleaned before they are used again.

- Only washable toys should be used with diapered children. Separate toys should be provided for each child group so that no sharing should occur between groups. This will limit the exposure of the infectious agents to only a single group during disease outbreaks.

- Hard surfaced toys should be washed and disinfect with household bleach regularly.

- Stuffed toys should be discouraged, i.e. toys that cannot be sanitized should not be allowed.

- A toy that is mouthed by a child should be washed and disinfected before other children handle it.

Measles

Causative agent: measles virus.

Signs and symptoms

The onset of measles is marked by fever followed by the “three C’s” – coryza, conjunctivitis and cough. These signs will peak at about 3 to 4 days around the time the rash appears. The rash starts on the face and progresses to the feet over 3 days changing from a discrete to a confluent rash. Once the rash appears, the fever and respiratory signs tend to improve. The rash fades over the next few days to leave a brown stain with generalised peeling of the skin. The course of measles generally resolves over a 10-day period. Incubation period is 10-12 days.

Mode of spread

Measles is spread by contact with secretions of infected persons by large-particle droplets requiring close contact or small-particle aerosols which allow distant mode of spread. Direct contact may also occur via contact with contaminated surface or objects. Measles is considered contagious from onset of symptoms through the first day of rash.

Diagnosis is often made clinically. Confirmation may be made by rapid antigen tests or measles IgM antibody.

Treatment

Measles is a self-limiting disease and treatment is mainly supportive. Antibiotics should be given only for proven bacterial complications such as otitis media. Complications can include pneumonia and encephalitis (brain infection).

Prevention

Measles vaccine: 2 doses of measles vaccination required. 1st dose at 12-15 months and 2nd dose at age either 6 or 7 years.

A child with known measles should be excluded from child care or preschool until 5 days after onset of rash. Unvaccinated children who are 6 months of age older should receive the live measles vaccine. If the vaccine is given within 72 hours of exposure, it may give protection against infection.

Influenza

Influenza (flu) is an infection caused by a virus called the influenza virus.

Signs and symptoms

Fever often with chills or rigors, headache, extreme tiredness, dry cough, sore throat, runny or stuffy nose, and muscle aches. Nausea, vomiting, and diarrhea also can occur, but are much more common in children than adults. In some children, influenza can appear as an upper respiratory tract infection or as a febrile illness with few respiratory tract signs. In infants, influenza can produce a sepsis-like picture and occasionally can cause croup, bronchiolitis or pneumonia.

Mode of spread

Influenza is spread from person to person mainly by droplets through coughing and sneezing of infected persons. It can also be spread by direct contact with influenza virus-contaminated surfaces eg. someone touching something with flu viruses on it and then touching their mouth or nose.

Incubation period

The incubation period for influenza is 1-4 days, with an average of 2 days.

Infectious period

People with influenza can potentially infect others during the 24 hours before symptoms develop and up to 5 days after becoming sick. That means that you may be able to pass on the flu to someone else before you know you are sick, as well as while you are sick. Viral shedding in nasal secretions usually peaks during the first 3

days of illness and ceases within 7 days but can be prolonged in young children and immunodeficient patients.

Prevention

Recommend influenza vaccination for children and care providers in child care settings as this is the best method for preventing flu and its potentially severe complications in children.

1. Encourage care providers and children

- To use soap and water to wash hands when hands are visibly soiled, or an alcohol-based hand cleaner when soap and water are not available and hands are not visibly soiled.
- Advise children and care providers to cover their noses and mouths with a tissue when sneezing or coughing, and to put their used tissue in a waste basket.
- Make sure that tissues are available in all nurseries, child care rooms, and common areas such as reading rooms, classrooms, and rooms where meals are provided.

2. Hand hygiene to prevent the spread of germs

(a) Care providers to wash their hands

- when the hands become soiled especially after they have sneezed or coughed on their hands.
- between contacts with infants and children;
- before meals or feedings;
- after wiping the child's nose or mouth;
- after touching surfaces soiled with saliva or nose drainage;

- after diaper changes;
- after assisting a child with toileting

(b) Children are to wash hands when their hands have become soiled. Teach children to wash hands for 15-20 seconds (long enough for children to sing the “Happy Birthday” song twice). When using the alcohol-based hand cleaner:

- Rub hands thoroughly until the alcohol has dried, when using alcohol-based hand cleaner.
- Keep alcohol-based hand cleaner out of the reach of children to prevent unsupervised use.
- Ensure that sink locations and restrooms are stocked with soap, paper towels or working hand dryers.

3. Ensure that each child care room and diaper changing area is supplied with alcohol-based hand cleaner when sinks for washing hands are not readily accessible.
4. Keep the child care environment clean and make sure that supplies are available.
5. Clean frequently touched surfaces, toys, and commonly shared items at least daily and when visibly soiled.
6. Observe all children for symptoms of respiratory illness
   - Observe closely all infants and children for symptoms of respiratory illness. Notify the parent if a child develops a fever of 37.8˚C or chills, cough, sore throat, headache, or muscle aches.
   - Encourage parents of sick children to keep the children at home and away from the child care setting until the children have been without fever for 24

hours, to prevent spreading illness to others. Similarly, encourage sick care providers to stay home.

Rubella (German measles)

Signs and symptoms

Clinical manifestations can be inapparent and hence unrecognised. It is generally a mild disease, characterised by slight fever, rash and enlarged lymph nodes (commonly in the neck region). The rash first appears on the face and then spreads downward and peripherally. The usual duration is 2-5 days. The illness is often more severe in adolescents and adults, with joint pain and arthritis being common.

Mode of spread

Rubella is transmitted by respiratory droplets or direct contact with an infected patient.

Diagnosis

Detection of rubella-specific immunoglobulin M antibody usually indicates recent rubella infection. Rubella virus can also be isolated from the nose and throat. A confirmed or suspected case should be notified to MOH immediately.

Treatment

No specific treatment is currently available.

Infectious period

The period of communicability occurs from up to 5 days before rash onset until 5 to 7 days after onset of rash. Incubation is from 14 to 21 days.

Prevention

1. Rubella vaccine is recommended to be administered together with measles and mumps vaccine (MMR) when a child is 12 to 15 months of age, with a second dose at 6 to 7 years.

2. Children with rubella should be excluded from child care or preschool for 7 days after rash onset.

3. The first step is to verify that other children in the centre have already been immunized against rubella. The immunized children may continue to attend the centre. Vaccination is recommended to protect against subsequent exposures if the child is not already incubating mild rubella infection. Rubella vaccine is not known to prevent illness when given post-exposure.

4. All staff members should provide a documented history of immunization or serologic evidence of immunity at the time of employment.

5. Pregnant non-immune women who are exposed to rubella should see their obstetrician for counselling regarding the risk of rubella to the foetus.

Tuberculosis (TB)

Causative agent: *Mycobacterium tuberculosis*

Signs and symptoms

TB disease can occur in many parts of the body; namely categorised as pulmonary (lung) TB and extrapulmonary (outside the lungs) TB. Extrapulmonary TB is less common, but children and persons with compromised immune systems are more susceptible to it.

The following features raise the suspicion of TB disease (i.e. active TB):

- Cough lasting 3 weeks or longer
- Coughing out blood
- Feeling tired all the time
- Fever and night sweats
- Loss of weight
- Chest pain

Mode of spread

TB is spread by breathing in droplets containing the TB bacteria which are expelled when patients with active pulmonary TB cough or sneeze, and spray these droplets into the air. Persons in close, prolonged proximity may become infected when they inhale these TB bacteria.

Not everybody who gets infected with the TB bacteria develops the disease. The body's immune system 'walls off' the TB bacteria, which can lie dormant in the body for years. This is called latent TB infection. Persons with latent TB infection are well and healthy, and do not spread the germ to others.

90% of those with untreated latent TB infection will never develop active TB. TB disease develops in about 10% of those infected. Half of these will develop disease within the first 2 years of infection.

The risk of latent TB infection developing into active TB disease is however higher in:

- Persons with weakened immune systems due to underlying medical conditions such as HIV infection, certain malignancies, kidney failure and diabetes, or being on immunosuppressive drugs
- Children under the age of 5 years old
- Persons who have poor nutritional status

Treatment

TB disease can be completely cured through medication. Treatment usually involves a combination of several different drugs (i.e. rifampicin, isonaizid, pyrazinamide, streptomycin). Because TB bacteria die very slowly, these anti-TB drugs must be taken for at least 6 to 9 months. One is considered non-infectious after the initial 2 weeks of treatment.

Most people with TB need not be hospitalized, but they will need to undergo Directly Observed Therapy (DOT) which requires them to take their TB medication under the supervision at the polyclinics. The World Health Organization has advocated DOT as the standard of care for TB patients. This is to ensure that the patient takes his or her medications correctly, and successfully completes the course of treatment. One must continue to take the medicine until the doctor certifies that treatment has been completed.

Irregular or incomplete TB treatment could mean that the TB bacteria in the body that survive continue to grow and multiply. But this time, the bacteria may develop

resistance to the usual TB drugs. In such situations, a different set of stronger drugs (with more side effects) must be taken for a longer period (approximately 18 months). The chance of cure is also considerably reduced and the drug-resistant TB germ may also be transmitted to the patient's close contacts.

Prevention

TB is a preventable disease. BCG vaccination at birth helps to reduce infants' and young children's risk to miliary TB and meningitis TB. However, it is less effective against the most common form of TB infection – pulmonary TB. Certain categories of persons (e.g. recent close contacts) with latent TB may benefit from treatment to reduce their lifetime risk of developing active TB disease.

There are also measures one can take to help protect oneself and others:

- **Complete the full course of the TB medications.**

  TB bacteria have a chance to become resistant to most TB drugs if the full course of TB treatment is not properly adhered to. The mutant TB strains become more deadly and difficult to treat.
- **Lead a healthy lifestyle.**

  Keep your immune system healthy by adopting healthy eating habits, exercising regularly and having enough sleep

If one has active TB, he or she can help keep his or her family and friends from getting sick by:

- Staying at home all the time especially in the first two to three weeks of treatment.
- Covering your mouth with a tissue when you cough or sneeze and wear a mask in the presence of other people during the first few weeks of treatment.
- Disposing properly the dirty tissue by sealing it in a bag and throwing it away.

Food Handling

Children are particularly vulnerable to the effects of food poisoning, so it is essential to protect them from this hazard by taking care when preparing their food. Strengthening food safety measures in schools would better protect students and school staff from outbreaks of food-borne illness.

Frequent hand washing is the single most effective means of preventing the spread of bacteria and viruses that can cause food-borne illness. Staff who changes diaper for children or assist in toileting children are frequently exposed to faeces and to children with infections of the intestines (often with diarrhoea). Staffs who prepare food in the kitchen should not change diapers or assist in toileting children.

FOOD PREPARATION AND CONSUMPTION

1. If food is to be prepared in the childcare centre/kindergarten/pre-school, the food handlers should undergo a Basic Food Hygiene course conducted by the National Environment Agency. (Please contact the National Environment Agency at 1800-225 5632 for any enquiries)

2. If food is catered, operators of childcare centres/kindergartens/pre-schools/ student care centres should ensure that the catered food is from a source licensed by the National Environment Agency.

3. Staff and parents are discouraged from bringing home-cooked food for the children as prolonged storage of food could increase the risk of food poisoning.

4. All food that requires preparation prior to being cooked and sold must be prepared under hygienic conditions at all times and persons handling food must observe good hygiene practices at all times.

5. Food handlers should wear clean, tidy clothes and an apron, if possible, when handling food.

6. Food handlers with sores or cuts on their hands should cover them with waterproof plasters and wear disposable waterproof gloves when handling food.

7. Food handlers should thoroughly wash their hands before handling food; after using the toilet; after coughing, sneezing, using a handkerchief or disposable tissue; after handling raw meats or unwashed product; and/or after engaging in any activity that may contaminate the hands.

8. Food should be kept properly covered to prevent contamination. If storing is required for longer periods, cooked food should be kept at below 10°C or above 60°C to prevent harmful bacteria from multiplying.

9. Bare hands should not be used to handle cooked food and other food, like salad and ice, which do not require further cooking. These food items should be handled with suitable utensils such as deli paper, waxed paper, tongs, forks, spatulas, spoons or single-use gloves.

10. Every child should have individual eating and drinking utensils. Children should not share or be fed from the same eating utensils.

11. Cracked or chipped eating and drinking utensils should not be used for serving food as they may harbour bacteria as well as pose risk of cut injuries to children.

12. Rubbish bins should be properly covered and emptied daily.

13. Staff with diarrhoea, fever or any other symptoms of food-borne diseases should not be allowed to work and handle food or feed the children.

14. Staffs who prepare food in the kitchen should not change diapers or assist in toileting children.

15. Utensils and food-handling equipment should be stored at least 30 cm off the floor/ground and in a manner that protects from dust, wind, rain, spillage, drainage and other sources of contamination. Food should be protected from contamination by storing them in a clean, dry location where it is not exposed to splash, dust, or other contamination and is at least 30 cm above the ground.

Body Contact Sport

Body Contact Sport is any sport in which the impact of one person against another is an inherent part of the sport. Contact sports include boxing, soccer, rugby, martial arts and hockey. Contact sports carry a high risk of injury.

Accidents where bleeding occurs

1. If skin is penetrated or broken, the immediate first aid is to clean the wound with soap and water. If water is not available, a 70% alcohol hand rub can be used. Remove the bulk of blood with absorbent material e.g. paper towels and dispose in a sealed plastic bag. Wipe the site with disposable towels soaked in 1:10 solution of bleach.

2. If clothes are blood stained, they should be changed for the clean clothes once the wound has been treated. They should be handled with gloves. Routine laundry procedures using hot water and detergents are adequate for decontamination of laundry items. Rubber gloves should be worn when handling or washing soiled linens.

General Hygiene for players

1. No sharing of towels and drink containers.
2. Report all cuts and abrasions to the teacher/coach for immediate treatment.
3. Maintain strict personal hygiene at all times, in activities on and off the field. This is the best method of controlling the spread of diseases.
4. It is strongly recommended that all players involved be vaccinated against Hepatitis B.

Exposure to Blood or Body Fluids

Body fluids include all secretions and excretions of the body. This includes blood, saliva, sputum, feces, urine, vomitus, open lesions, non-intact (broken) skin and secretions from wounds

Exposure to blood and body fluids poses a potential risk for mode of spread of infection to those providing care. The safe and effective management of blood and body fluids are necessary to prevent mode of spread of infection via this route.

Routes of mode of spread from blood or body fluids

1. Faecal-oral

Viruses, bacteria and parasites that are present in the faeces of the student who have an infectious disease may be passed directly form soiled hands to others either directly to the mouth or indirectly via objects, surfaces or food. The sites most commonly contaminated with faeces are hands, floors, tab handles, toilet areas (e.g. flush handles/buttons) handrails, door handles and tabletops. Examples of infectious diseases transmitted via the faecal-oral route are bacterial and viral gastroenteritis, Salmonellosis and Shigellosis. Contact Precautions are to be applied to prevent this transmission.

2. Urine

Urine can contain infectious organisms. Hands, objects or surfaces that have been soiled by urine from an infected child can enable the spread of infection, such as cytomegalovirus (CMV). Contact Precautions will prevent this transmission.

3. Vomitus

Hands, objects or surfaces that have been soiled by vomitus from an infected child can enable the spread of infection, such as gastrointestinal virus. Contact Precautions will prevent this mode of spread.

4. Blood

Some diseases, such as AIDS, Hepatitis B and Hepatitis C can spread through blood or blood products. Mode of spread can occur when infected blood enters another person through broken skin or needle-stick or sharp injuries.

Blood and body fluids often contain microorganisms that can cause illness. In order for an illness or infectious disease to occur, the microorganism must be transmitted from the reservoir (blood or body fluid) to a susceptible host. The use of barrier methods such as gloves, as well as good hand washing practices, helps to prevent the mode of spread of a pathogen into a susceptible host and minimizes the chance that disease or infection will occur.

Management of Exposure to Urine, Vomitus and Faeces

1. Wear disposable gloves and apron
2. Bring the child to the designated area to change clothing soiled with body fluids
3. Ensure that diapers changing area are designated for that use only and that they are not near the playing or kitchen area.
4. Diapering procedures to include folding the soiled diaper surface inward. The potentially contaminated diaper should be wrapped in a plastic bag, tied securely before being discarded into a plastic-lined foot-operated lid bin.

5. Potentially contaminated items (e.g., tissues, paper towels, diapers) should be handled with disposable gloves
6. Remove gloves / apron and discard and put into a plastic bag, and tie securely before discarding into a plastic-lined foot-operated lid bin.
7. Hand hygiene should be performed.
8. The child's hands should be washed.
9. Clean the area with a neutral detergent and disinfect the changing surface.

Management of Exposure to Blood

1. Staff to wear gloves /disposable apron.
2. Administer first aid (first aid staff, facilities and equipment should be provided in accordance with the school procedure for first aid)
3. Assist student to change clothing soiled with blood.
4. Staff to remove glove and apron and dispose into a plastic-lined, hands-free covered bin. Performed hand washing.

Cleaning a Blood or Body Fluid Spill

When cleaning environmental surfaces that are visibly soiled with feces or vomitus, masks and gloves should be worn, a disposable towel soaked in dilute detergent should be used to wipe the surface for ≥10 seconds, and a 1:10 household bleach solution should then be applied for ≥1 minute. Disposable towels used to clean visibly soiled surfaces should be discarded appropriately after use because they can transfer virus to fingers and other surfaces

For spills containing large amounts of blood or other body substances, workers should first remove visible organic matter with absorbent material (e.g. disposable paper towels discarded into leak-proof, properly labelled containment) and then clean and decontaminate the area.

Infectious Disease Outbreak

Infectious diseases are common among nursery, pre-school or school children and these settings often present as an ideal situation for diseases to spread. Ensuring that infectious and ill children do not attend school is an important aspect of infection control.

Schools tend to be affected by outbreaks more than other settings because their occupants - primarily children - easily transmit illnesses to one another as a result of their close proximity and difficulty in ensuring their compliance with good personal hygiene practices and respiratory etiquette.

An infectious disease outbreak can be defined as “two or more linked cases of the same illness or when the number of cases of the same illness unaccountably exceeds the expected number.”

1. There are several ways in which nurseries, pre-schools and schools may become aware that they have an outbreak of an infectious disease.
    a. Several children may be ill in nursery, pre-school or school with the same illness;
    b. There may be a sudden increase in the number of absentees;
    c. Parents may report to the nursery, pre-school or school that their children are suffering from an infectious disease;
    d. The Ministry of Health staff may contact the teacher-in-charge / principal

2. Outbreaks of infectious disease may occur in nurseries, pre-schools and schools. Their importance depends on several factors: -
    a. severity of the disease

b. number of children affected

c. mode of mode of spread

d. amount of anxiety they generate in parents and staff

e. if any specific action is necessary to stop further cases (e.g. immunisation, improving food-handling practices).

Prevention

Prevention may be considered in three areas, aiming at:

a. the outbreak source

b. contaminated vehicles of infection mode of spread

c. susceptible human

Choice of control measure within these three areas is dictated by factors such as whether the outbreak source is known, whether a suspected vehicle has been identified, and whether a vaccine or prophylactic treatment is available for susceptible humans.

Infectious disease prevention includes:

1. Requiring certain immunizations

Parents should be encouraged to ensure that their child receives all appropriate routine vaccinations when they are due, unless there are true medical reasons why they should not immunised. Nurseries, pre-schools and schools should keep an updated children's immunisation record**.** Some infections, however, cannot be prevented by immunisation and limiting their spread in the community is dependent on a combination of isolating the infectious source as well as improving personal hygiene practices, where appropriate.

2. Identifying children who have communicable diseases

If the officer-in-charge / head teacher suspects that there may be an outbreak, he or she should report the situation to Ministry of Health. It is helpful for the initial assessment of the situation if the officer-in-charge / head teacher / can find out:

a. What are the symptoms?
b. When did each child fall ill i.e. when did symptoms first start?
c. Where did the child get the infection i.e. at home or at school?
d. How many children are ill?
e. Which group of children i.e. are the children from the same class?
f. What type of food did the children eat i.e. they have taken same type of food? (for situations when the children develop food poisoning symptoms such as diarrhoea and/or vomiting)

Prevention of spread

1. If a child is suffering from any of the infectious disease, the child should be immediately isolated by placing him/ her temporarily at the sick-bay (for childcare centres), or principal's office (for kindergartens). The child should wear a surgical mask if he has signs or symptoms of upper respiratory tract infections. His/her parents should be informed to bring him/her for medical treatment and isolated at home/hospital.

2. It is the responsibility of the supervisor/ principal of the child care centre/ kindergarten/ pre-school centre/ student care centre to ensure that if any staff or child or person engaged in food preparation or rendering services to the centre / kindergarten is suffering from an infectious disease, he/she should be excluded from the centre/ kindergarten/ pre-school centre until well and displaying no symptoms.

3. Devise a communications system to inform parents of outbreaks, risks and precautions, as well as actions taken by the school and resources for additional information. Communication with parents, staff, families, students and the media is important, and each group may require different, yet consistent, messages. It is imperative that schools maintain up-to-date emergency contact numbers for all pupils, not only so that parents can be contacted if children are ill and need to be taken home, but also to assist in the investigation of any outbreaks.

4. Disseminate messages about preventive hygiene - including effective hand washing and the importance of covering the mouth during coughs and sneezes - by using posters and educational talks to outline recommended procedures for staff and students.

5. Social distancing refers to procedures to decrease the frequency of contact among people to lessen the risk of spreading an infectious disease. Depending on the type and severity of the infectious disease, closing schools may not be enough to slow the spread. Students can re-congregated in malls, private homes, movie theatres, restaurants or other places in the community, increasing the risk of the spread of the disease. For this reason it is recommended that, when closing schools, public health partners encourage social distancing for students and issue guidelines for social distancing. These procedures or guidelines, which may be distributed through the school networks, will play an integral role in limiting the mode of spread of the disease and delaying the spread of the virus.

6. Childcare facilities should clean and sanitize frequently-touched surfaces (e.g. desks, doorknobs, computer keyboards, toys) routinely and if they become visibly soiled.

7. Conduct training for teachers, administrative staff and food service staff about infectious diseases, their symptoms and treatments, and how to prevent and control outbreaks

Surveillance

1. Establish processes and procedures (a “surveillance system”) so individual schools can continually report the absentee rates for staff and students.

2. The overall health of the children should be checked daily upon arrival, noting any unusual symptoms or behaviour. A child who has contracted an infectious disease usually shows general signs of illness before development of a rash or other typical symptoms. Thus the child may complain of shivering attacks or feeling cold, headache, vomiting, sore throat or just vaguely feeling unwell.

3. The supervisor should ensure that the screening of children for illness includes promoting good standards of personal hygiene, keeping ill children out of school until they are fully recovered and undertaking daily surveillance i.e. identifying and investigating any new cases on a daily basis.

4. Early recognition of disease outbreaks is necessary to implement effective control methods. Clusters of illness (such as two or more people ill with similar symptoms closely grouped in terms of time and place) should be reported.

Notification

If an outbreak of two or more cases of infectious diseases occurs, the Ministry of Health is to be immediately notified under the Infectious Diseases Act (Cap 137). Please refer to the MOH website for instructions on notification (http://www.moh.gov.sg/).

What to do when a student has symptoms of an infectious disease

a. Inform the designated staff.

b. Inform the student’s parents/guardians.

c. Separate the student from the other students.

d. Take the student's temperature.

e. If a student is coughing or sneezing, remind her/him to cover her/his mouth and to wash her/his hands afterwards.

f. After touching a student who might be sick, the teacher should avoid touching other students until he or she has washed hands.

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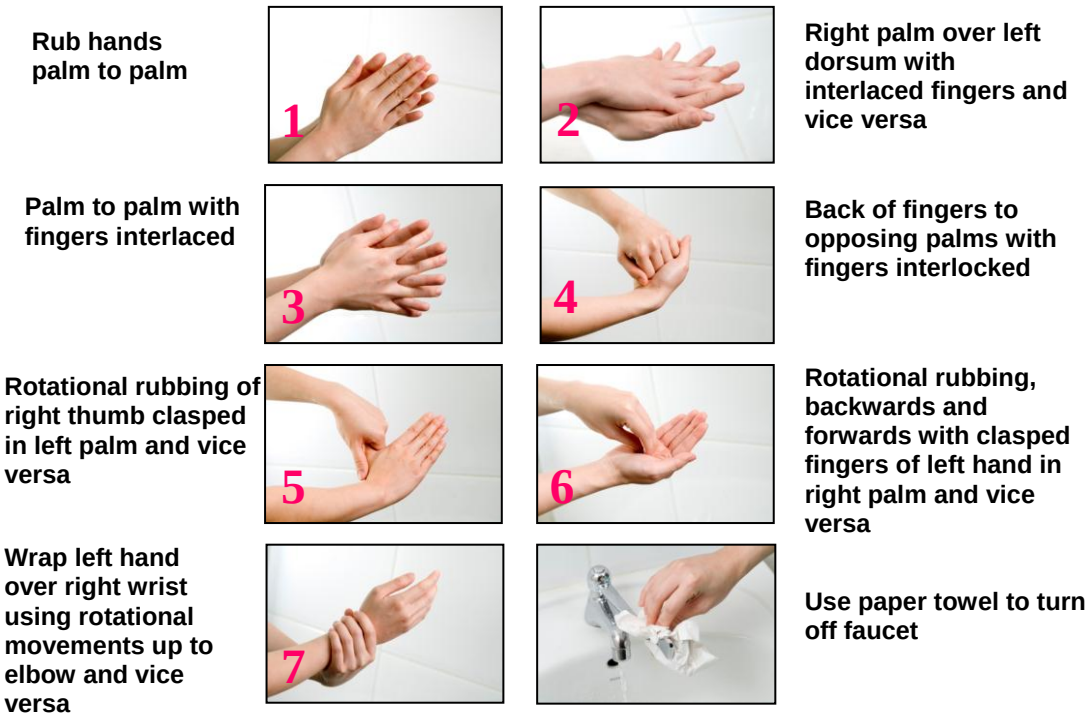
Appendix A

Hand hygiene



Source: Infection Control, SGH, used with permission

Appendix B

Putting on and removal of a surgical mask

Tie the upper strings at the top of the head

Tie the lower strings at the back of the neck

Fix the metallic strip securely over the bridge of the nose

Ensure that the mask fully cover the nose, mouth and is stretched gently over the chin and fit snugly over the face

Change mask every 4 hrs or if it becomes moist or damaged

Source: Infection Control, SGH, used with permission

Appendix C

Recommended exclusion periods

Infection or condition	Mode of mode of spread	Criteria for exclusion	Return	Comments
AIDS or HIV	Blood or body fluid	Nil		Children with certain behaviour)e.g. biting, frequent scratching, dermatitis or bleeding problems) should be assessed on an individual basis
Chickenpox (Varicella)	Airborne and contact with vesicle fluid	Clinical diagnosis, laboratory diagnosis or significant rise in blood antibody titre	When lesions have crusted (usually around 5 days)	
Conjunctivitis	Contact with eye drainage	Red/pink mucous membrane of eye with white/yellow discharge, without evidence of allergic reaction	When asymptomatic	
Diarrhoea	Oro-faecal	When diarrhoea is present	When asymptomatic	
Fifth disease (Parvovirus B-19)	Droplet, blood	When a “slapped cheek” appearance and fever are present	When fever is no longer present	
Hand foot mouth disease	Contact	Clinical diagnosis	When fever is no longer present and clinical improvement of lesions is evident	Surveillance of children for similar symptoms

Infection or condition	Mode of mode of spread	Criteria for exclusion	Return	Comments
Hepatitis B	Blood or body fluid	Laboratory diagnosis during acute stage of illness	When acute illness has resolved	Children with behavioural problems that may increase risk of disease mode of spread should be assessed on an individual basis
Hepatitis C	Blood or body fluid	Laboratory diagnosis during acute stage of illness	When acute illness has resolved	Children with behavioural problems that may increase risk of disease mode of spread should be assessed on an individual basis
Impetigo	Contact with discharges from infected lesions	Clinical diagnosis of disease or laboratory isolation of *Staphylococcus* or *Streptococcus* from a skin lesion	24 hours after initiation of antimicrobial treatment	Surveillance of children for similar symptoms
Influenza	Droplet and contact with respiratory secretions	Clinical diagnosis or laboratory confirmation of disease	When fever is no longer present	Surveillance of children for similar symptoms
Lice (head or body)	Contact with person or clothing or other items infested with lice	Identification of nymphs or adult lice on hair or body	Head lice: after 1st treatment with effective peduculicide Body lice: After changing and washing infested clothing	Examine contacts and treat if infected. Machine wash clothing, bedding or cloth toys in hot water cycle. Dry cleaning is effective in killing lice

Infection or condition	Mode of mode of spread	Criteria for exclusion	Return	Comments
				or nymphs.
Measles	Contact with respiratory secretions	Clinical diagnosis or laboratory confirmation by IgM testing or virus isolation	5 days after onset of rash or negative laboratory test	Verify immune status of children and staff exposed to patient. Those not immune should be vaccinated within 72 hours of exposure.
Mumps	Contact with respiratory secretions	Clinical diagnosis or laboratory confirmation by IgM testing or virus isolation	10 days after onset of parotid gland swelling	Verify immune status of children and staff exposed to patient. Those not immune should be vaccinated with MMR.
Scabies	Contact with infested person or materials contaminated with mites	Clinical diagnosis of disease	After completion of treatment	Surveillance of children for similar symptoms. Prophylactic treatment for persons who had skin to skin contact with confirmed cases. Machine wash clothing, bedding or cloth toys in hot water and dry in hot dryer.
Streptococcus pyogenes (strep throat)	Contact with respiratory secretions	Laboratory isolation of organism	24 hours after initiation of appropriate antimicrobial treatment	Surveillance of children for similar symptoms. Exclude those with

Infection or condition	Mode of mode of spread	Criteria for exclusion	Return	Comments
				similar symptoms until asymptomatic or laboratory testing is negative.
TB	Airborne	Laboratory confirmation of TB from clinical specimens or suspected TB based on symptoms	When attending doctor determines that person is no longer infectious	

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