GUIDELINES FOR THE PREVENTION AND CONTROL OF INFECTIOUS DISEASES IN CHILD CARE CENTRES/ KINDERGARTENS/ PRE-SCHOOL CENTRES/ STUDENT CARE CENTRES

Ministry of Health

Feb 2005
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INTRODUCTION

Many common childhood diseases are infectious. Children in child care centres/ kindergartens/ pre-school centres/ student care centres spend a large part of their day in groups and in close contact with one another, making them more vulnerable to infectious diseases. Outbreaks of infectious diseases, which can spread rapidly within child care centres/ kindergartens/ pre-school centres, pose medical and other problems. Sick children will need to be excluded from the centre and working parents will have to stay at home or make alternate arrangements to care for them at home.

PART I: PRELIMINARY

1 PURPOSE

1.1 The purpose of this document is to provide guidelines to operators and supervisors/ principals of child care centres/ kindergartens/ pre-school centres on the prevention and control of infectious diseases by maintaining a high standard of hygiene and sanitation.

2 SCOPE AND APPLICATION

2.1 The document applies to all childcare/ student care centres licensed by Ministry of Community Development, Youth and Sports, and kindergartens/preschool centres registered with Ministry of Education.

2.2 Common childhood infectious diseases are highlighted together with the appropriate preventive actions to be taken.

2.3 In the guidelines, references to specific requirements under the relevant legislations are made. Failure to comply with these requirements shall constitute an offence under the respective regulations, and appropriate enforcement action shall be taken.
3 RESPONSIBILITY

3.1 It is the responsibility of the person operating a childcare centre, kindergarten or any other pre-school centre to ensure that:

(a) the premises is clean and hygienic;
(b) persons employed for the operation, management and supervision of the centre have adequate qualifications, experience and training;
(c) children cared for and persons employed are medically examined; and
(d) measures are taken to preserve the health and well-being of children and employees; and any child or employee who is sick is excluded from the centre.
PART II: PREMISES

4 DESIGN AND STRUCTURE

4.1 Every child care center, kindergarten and any other preschool centre shall have a minimum of 3 square metres of usable floor space (excluding service areas) as indoor activity area for each child enrolled. This is to avoid overcrowding, which reduces the risk of spread of infectious diseases.

4.2 It shall have designated areas for the appropriate activities such as play, rest, eating, washing, bathing, food preparation and storage, and isolation of sick children.

4.3 The floor shall be clean, damp-proof and washable. The use of carpets is discouraged.

4.4 Drains shall be covered.

5 TOILET AND WASH-HAND BASIN

5.1 All toilets shall incorporate the following requirements under the Code of Practice on Environmental Health:

(a) The toilet shall preferably be naturally ventilated. If mechanically ventilated, the air exchange rate shall have a minimum of 15 air changes per hour (refer to Code of Practice on Environmental Health). Service access ducts, if fully enclosed, shall be connected to the mechanical ventilation system, and suitable fresh air inlet grilles shall be provided to ensure an air exchange rate of 10 air changes per hour (refer to CP 13-Code of Practice for Mechanical Ventilation and Air-conditioning in Buildings).

(b) Ceiling or wall fans shall be provided within the toilet to aid in the circulation of air.

(c) The minimum lighting level shall be 300 lux.

(d) Lever taps should be used.

(e) The following accessories shall be provided in the proportion as stated below:
### Accessories

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid Soap dispenser</td>
<td>One for every two wash-hand basins subject to a minimum of one</td>
</tr>
<tr>
<td>Hand-dryer blower or single-use towel dispenser (cloth or paper)</td>
<td>Minimum of one</td>
</tr>
<tr>
<td>Litter bin</td>
<td>Minimum of one</td>
</tr>
<tr>
<td>Toilet paper holder</td>
<td>Minimum of one in each water closet compartment</td>
</tr>
</tbody>
</table>

6. **INDOOR AIR QUALITY**

6.1 **Classroom**

The minimum outdoor air supply for classroom is such that the carbon dioxide level should be maintained at below 1000 ppm.

6.2 **Sick bay**

The minimum outdoor air supply for sick bay is such that the carbon dioxide level should be maintained at below 1000 ppm. The ventilation should be independent and the air should not be recycled into the rest of the classroom. Filters should be replaced and cleaned according to the manufacturer's specifications.

6.3 **General maintenance of air-conditioning system**

Satisfactory ventilation to all rooms should be provided with even air distribution to all rooms. Outdoor air filters should have 60% arrestance and primary filter should have 80% arrestance. The filters should be replaced or cleaned regularly according to the instruction manual. Condensation of the air-conditioning duct should be prevented and all water-damaged surfaces replaced.
PART III: ORGANISATION

7 Child groups

7.1 To minimise transmission of infectious diseases, each group of children shall have separate classrooms and play areas. As far as possible, younger children, especially those in diapers, shall be separated from older children. This is because:

(a) when two child groups are mixed, all the children will be exposed to a common source of infection. Separating the groups confine the risk of disease transmission to a single group; and

(b) infected infants and toddlers under 3 years of age are efficient transmitters of diseases such as hand, foot and mouth disease. Separating young children in diapers from older children reduces the risk of transmission of enteric diseases.

7.2 Staff in charge of child groups with diapered children shall not prepare food and they shall not serve food to children outside their own group. If they must, they shall wash their hands properly.
IV HYGIENE AND SANITARY PRACTICES

8 HAND WASHING

8.1 Staff and children shall follow the following recommended hand washing procedures to reduce the risk of disease transmission in the centre:

(a) use liquid soap and running water;
(b) rub hands vigorously as they are washed for at least 10 seconds;
(c) wash all surfaces, including back of hands, wrists, between fingers and under fingernails;
(d) rinse hands well after washing; and
(e) dry hands with single-use towel

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

8.3 Staff shall wash their hands:

(a) when they come to the centre in the morning;
(b) before they prepare or serve food;
(c) after they change diapers, clean up or wipe the nose of a child;
(d) after contact with blood or body fluids;
(e) after they have been to the toilet, either with a child or by themselves
(f) after handling pets, pet cages, or other pet objects
(g) after outdoor activities (e.g. playing with children in the sandpit)
(h) before giving or applying medication or ointment to a child or self
(i) before going home

8.4 Children shall wash their hands:

(a) when they arrive at the centre;
(b) before they eat or drink;
(c) after they use the toilet; and
(d) after they come into contact with a child who may be sick.
(e) after having their diapers changed
(f) after playing on the playground
after handling pets, pet cages, or other pet objects
(h) before going home

9 USE OF GLOVES

9.1 To prevent the transmission of blood-borne pathogens in childcare centre/kindergarten/pre-school centres, staff should wear disposable waterproof gloves in situations where contact with blood or body fluids is expected:

(a) treating bleeding noses or wounds of children
(b) handling clothes soiled with urine, faeces, vomit or blood
(c) cleaning small blood and body fluid spills by hand

9.2 Used gloves and soiled material should be disposed of in a plastic bag or a lined rubbish bin. Staff should wash their hands immediately after that.

9.3 Supplies of disposable gloves, towels and disinfectants should be made readily available and accessible to all staff.

10 DIAPERING

10.1 Diapers shall be changed directly on disposable paper towels, roll paper or any other disposable covering to enable easy cleaning at the designated diaper changing area.

10.2 The disposable covering shall be placed on a surface that is:

(a) smooth, non-absorbent and easily cleaned;
(b) out of reach of children;
(c) separate from the food preparation area; and
(d) within the reach of a sink not used for food preparation.

Recommended materials for the surface included formica, metal, plastic, enamel or diapering pad. Rough or porous surfaces like that of a tile or unsealed cement should be avoided as maintenance will be difficult and subsequent chances of contamination will be higher.

10.3 Used disposable diapers and other disposable coverings shall be disposed of properly and immediately in a plastic bag or a lined rubbish bin. Surfaces that
are soiled must be cleaned and disinfected with diluted household bleach (1 part of bleach with 10 parts water for soiled surfaces) immediately.

10.4 Diapering supplies (e.g. towels, soap, disinfectant, sealable plastic bags etc.) shall be stored in a location that is easily accessible to the staff and at the same time out of reach to the children.

10.5 Hands shall be washed carefully after changing diapers. Disposable gloves are not needed unless blood is visible or the child has an infection with another respiratory or faecal pathogen that requires precautions to prevent contact with the body fluids.

11 POTTY CHAIRS

11.1 Potty chairs shall be kept in the toilets and out of reach of the children. They shall not be kept in passageways or in the classrooms unless the areas are separated by screens or other dividers.

11.2 After use, the contents of the potty chair shall be emptied into the toilet. The potty chair shall then be rinsed, cleaned and disinfected with diluted household bleach (1 part of bleach with 10 parts water) in a sink used only for this purpose. It shall not be washed in a sink used for washing hands. If it is, all surfaces of the sink shall be properly cleaned and disinfected with diluted household bleach (1 part bleach with 10 parts water) after use.

12 SOILED CLOTHING

12.1 Staff shall wear disposable waterproof gloves when handling clothings soiled with urine, faeces, vomit or blood.

12.2 Used gloves and soiled material must be disposed of in a plastic bag or a lined rubbish bin. Hands and other parts of the body should be washed immediately after contact with blood even though gloves are used.

12.3 If, clothing soiled with stools is to be rinsed at the centre, it shall be done in a pail designated for this purpose in the centre. The soiled clothings shall be packed in plastic bags to minimise exposure of staff and children to disease-carrying agents.

12.4 The pail used to wash soiled clothings shall be disinfected after each use. The pail shall be stored in a designated space, and it shall not be used for any other purpose.
12.5 Hands shall be washed after handling soiled clothing.

13 COMMUNAL TOYS

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

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

13.3 Stuffed toys shall be discouraged, i.e. toys that cannot be sanitized shall not be purchased.

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

13.5 Heavily soiled toys shall be kept in an empty basin that is out of the children’s reach, until they are washed, disinfected and dried.

14 GENERAL SURFACES

14.1 Floor, low shelves, doorknobs and other surfaces often touched by diapered children shall be washed and disinfected daily.

14.2 Surfaces in the bathroom like faucet handles and toilet seats shall be washed and disinfected with diluted household bleach (1 part of bleach with 50 parts water) at least once a day. Surfaces that infants and young toddlers are likely to touch shall be washed daily and disinfected with diluted household bleach (1 part of bleach with 50 parts water).

14.3 Mattress covers and linens shall be washed daily if the child does not get the same mattress cover everyday.

14.4 Mattress/ couch in the sick bay shall be a material that is easy to disinfect, e.g. PVC. Mattress/ couch in the sick bay shall be disinfected with diluted household bleach (1 part bleach with 50 parts water) immediately after use.

14.5 All blood and body fluids spills must be cleaned up immediately. The soiled surface must be scrubbed and disinfected with diluted household bleach (1 part bleach to 5 parts water).
14.6 Mops and equipment used to clean up blood and body fluids must be soaked in
diluted household bleach (1 part bleach to 5 parts water) after use, rinsed
thoroughly and dried. The solution should be promptly disposed of down a
drain pipe.

15 CHILD BITING INCIDENT

15.1 A bite from another child will rarely transmit infection if proper first aid
treatment is given.

15.2 If the skin is not broken, the wound shall be cleaned with soap and water. Apply
a cold compress and soothe the bitten child. Advise the parents that the child
was bitten.

15.3 If the skin is broken, assess the wound. Clean the area gently with soap and
water. Make sure the child's immunisations are up to date. Notify the parents
immediately and file an incident report.

15.4 In all cases, observe the wound. The child shall be taken to see a doctor if
redness or swelling persists.

16 WADING POOL

16.1 If a wading pool is available for the children’s use, it shall be so designed that
the water quality will always remain safe for the health of the children.

16.2 The pool shall have smooth and easy-to-clean surfaces.

16.3 The water shall be kept clear and no scum or floating impurities shall be
allowed to accumulate. The colour of the water shall not exceed 5 Hazen units
and the turbidity shall not exceed 5 Nephelometric Turbidity Units (NTU).

16.4 The required bacteriological quality shall be as follows:

(a) *Escherichia coli* shall not be present in any 100 ml of the sample of water
taken from the pool;

(b) Not more than 10 coliform organisms shall be present in any 100 ml of the
sample taken from the pool;

(c) Not more than one out of five consecutive samples of water shall contain
any coliform organism in 100 ml of the water sample; and
(d) No samples shall contain more than 200 bacteria per ml as determined by the 24-hour plate count at 37°C or by the membrane filter method.

16.5 A chlorine residue of not less than 1.0 mg/l and not more than 3.0 mg/l shall be maintained in the pool. The pool water shall have pH values of between 7.2 and 8.4.

16.6 If plastic or inflatable pool is used, it shall be emptied, cleaned, disinfected and dried after use.

17 **Bathing**

17.1 Childcare centres/ kindergartens/ pre-school centres which carry out bathing for the children shall ensure that individual bath towels are provided.

17.2 The bath towels may be provided either by the childcare centre/ kindergarten/ pre-school centre or brought from home. Sharing of bath towels among the children shall not be allowed.

17.3 Staff shall ensure that the children's bath towels are labelled for identification purpose and stored in an area for the children to retrieve their own bath towels easily.

17.4 If the bath towels are provided by the child care centre/ kindergarten/ pre-school centre and will be kept in the child care centre/ kindergarten/ pre-school centre, staff shall ensure the bath towels are washed after every bathing session.
PART V: FOOD HYGIENE

18  KITCHEN DESIGN

18.1 Every childcare centre/kindergarten/pre-school/ student care centre shall have a designated space for the preparation of food and snacks. The space should be rendered inaccessible to children.

18.2 It shall have sufficient and suitable kitchen facilities for the preparation of meals and for the washing up of utensils.

18.3 At least one wash-hand basin shall be provided for staff in the kitchen that shall be used solely for the purpose of food preparation to avoid possible cross-contamination.

18.4 All stores and storage cabinets provided shall be pest- and rodent-proof. A separate storage cabinet shall be provided for cleaning tools and cleaning materials.

18.5 The walls of the kitchen shall be lined with glazed tiles or other impervious materials to facilitate cleaning.

18.6 Surfaces for preparation of food shall be clean before and after use.

18.7 No overhead drain pipes shall be sited in the area where food is prepared or cooked to avoid possible contamination from leaky pipes.

19  FOOD PREPARATION AND CONSUMPTION

19.1 If food is prepared in the childcare centre/kindergarten/pre-school, the food handlers shall 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)

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

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

19.4 Food handlers shall wear clean, tidy clothes and an apron, if possible, when handling food.
19.5 Food handlers with sores or cuts on their hands shall cover them with waterproof plasters or wear disposable waterproof gloves.

19.6 Staff with diarrhoea, fever or any other symptoms of food-borne diseases shall not be allowed to handle food or feed the children.

19.7 Food shall be 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 reduce the growth of bacteria. Bare hands shall not be used to handle cooked food and other food, like salad and ice, which do not require further cooking.

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

19.9 Cracked or chipped eating and drinking utensils shall not be used for serving food. These flawed utensils have a higher chance of harbouring bacteria as well as cutting the children.

19.10 Rubbish bins shall be properly covered and emptied daily.
PART VI: INFECTIOUS DISEASES

20 MEDICAL EXAMINATION AND IMMUNISATION

20.1 No childcare centre/ kindergarten/ pre-school shall enroll any child who has not been given immunisation for diphtheria and measles which are compulsory under the Infectious Diseases (Diphtheria and Measles Vaccination) Regulations (Cap 137, Rg 3).

20.2 The operator/ supervisor shall ensure that the children receive their immunisations on schedule. The recommended childhood immunisation schedule is shown in Appendix B. Each child shall have an immunisation record that is updated accordingly when the child receives additional vaccine doses.

20.3 Every member of the staff shall undergo a medical examination, including general physical examination, chest X-ray, full urine test and blood test for haemoglobin, and be certified free from infectious diseases by a registered medical practitioner before employment. In addition, all staff over the age of 45 years shall undergo a chest X-ray examination once every 3 years.

20.4 Any person engaged in the preparation of food in the childcare centre/ kindergarten/ pre-school shall undergo a medical examination and be vaccinated against typhoid before employment and subsequently once every 3 years.

21 COMMON CHILDHOOD INFECTIOUS DISEASES

21.1 Details of the common infectious diseases with the potential to cause outbreaks in childcare centers, kindergartens, pre-school centres and student care centres are given in Appendix C.

22 SURVEILLANCE

22.1 The overall health of the children should be checked daily upon arrival, noting any unusual symptoms or behaviour.

22.2 The supervisor should ensure that the screening of children for illness includes appropriate hand-washing and barrier precautions to prevent person-to-person transmission.
22.3 The child should not be allowed to attend the child care facility if the child does not appear well enough to participate in activities as usual and/or has any conditions (Appendix D) requiring removal from the child care setting.

23 INTERRUPTION OF TRANSMISSION

23.1 If a child is suffering from any of the infectious disease listed in Appendix C, he shall be immediately isolated by placing him/ her temporarily at the sick-bay (for childcare centres), or principal’s office (for kindergartens). His/her parents shall be informed to bring him/her for medical treatment and isolated at home/hospital.

23.2 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 shall be excluded from the centre/ kindergarten/ pre-school centre until certified free from the disease by a registered medical practitioner.

23.3 The supervisor/ principal of the child care centre/ kindergarten/ pre-school centre shall implement whatever actions required by health officers from Ministry of Health to prevent further transmission of the disease.

23.4 Where it may be necessary to interrupt transmission of a serious infectious disease, the Ministry of the Health may require the closure of the childcare centre/ kindergarten/ pre-school centre under the Infectious Diseases Act (Cap 137).

24 NOTIFICATION

24.1 If an outbreak of two or more cases of infectious diseases listed in Appendix C occurs, it shall be immediately notified under the Infectious Diseases Act (Cap 137), by telephone or fax through Forms A and B, to:

Director of Medical Services  
c/o Communicable Diseases Surveillance  
Ministry of Health  
Tel: 1800-3258451  
Fax: 62215528 or 62215538

24.2 Should a fatal case of any infectious disease listed in Appendix C occur, it shall be immediately notified by telephone or fax, to the Director of Medical Services as in para 24.1.
CHILD CARE CENTRE REGULATIONS (CAP 37A, Rg 1)
SECOND SCHEDULE

Regulation 30
Hygiene and Environmental Health

1. Every child care centre shall provide wash hand basins and flush toilets as follows:

<table>
<thead>
<tr>
<th>Number of children</th>
<th>Number of wash hand basins</th>
<th>Number of flush toilets</th>
</tr>
</thead>
<tbody>
<tr>
<td>47 and below</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>48 - 71</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>72 - 95</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>96 - 119</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>120 - 143</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>144</td>
<td>7</td>
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</tbody>
</table>

2. Where a childcare centre has a capacity of more than 144 children, there shall be one additional toilet and wash hand basin each for every 32 children in excess of 144 children.

3. Wash hand basins shall be of child-size and fixed at a height approximately 500 mm to 600 mm from the floor.

4. A mirror of a suitable size shall be fixed to the wall above the wash hand basins.

5. Flush toilets shall be of the child-sized pedestal type of toilet of a height not exceeding 350 mm (measured without seat) from the floor.

6. Flush toilets shall be separated by partitions of a height of one metre.

7. Internal walls of toilet blocks shall be lined with glazed tiles to a height of at least 1.5 metres. The wall behind and above wash hand basins and sinks shall be lined with glazed tiles to a height of not less than 450 mm.

8. Bathing facilities for children shall be provided.

9. Where children who are 18 months of age and below are enrolled, the child care centre shall provide sinks with running water near the diaper change area at a ratio of one sink for every 10 children aged 18 months of age and below.
## Recommended childhood immunisation programme, Singapore, 2001

<table>
<thead>
<tr>
<th>DISEASES</th>
<th>PRIMARY COURSE</th>
<th>BOOSTER DOSES</th>
<th>Secondary school students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Infants (&lt;1 years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TUBERCULOSIS</td>
<td>Birth - BCG without Mantoux test</td>
<td>Direct BCG if no previous vaccination</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>6+ years (Primary school entrants)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Direct BCG if no previous vaccination.</td>
<td></td>
</tr>
<tr>
<td>DIPHTHERIA*</td>
<td>3 months DPT (1st dose)</td>
<td>18 months DPT (1st booster)</td>
<td>6+ years (Primary school entrants)</td>
</tr>
<tr>
<td>PERTUSSIS</td>
<td>4 months DPT (2nd dose)</td>
<td></td>
<td>DT (2nd booster)</td>
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<tr>
<td>TETANUS</td>
<td>5 months DPT (3rd dose)</td>
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<td>11+ years (Primary school leavers)</td>
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<td></td>
<td></td>
<td></td>
<td>DT (3rd Booster)</td>
</tr>
<tr>
<td>POLIOMYELITIS*</td>
<td>3 months</td>
<td>18 months 1st booster</td>
<td>6+ years (Primary school entrants)</td>
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<tr>
<td></td>
<td>4 months</td>
<td></td>
<td>Either:</td>
</tr>
<tr>
<td></td>
<td>5 months</td>
<td></td>
<td>(a) Primary course for those who have never been vaccinated; or</td>
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<td></td>
<td>(b) 2nd Booster for those who had been vaccinated.</td>
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<td>11+ years (Primary school leavers)</td>
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<td>3rd booster</td>
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<td>MUMPS/MEASLES/</td>
<td>1 year – (1 dose)</td>
<td>11+ years (Primary school leavers)</td>
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<td>RUBELLA</td>
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<td>JC year 2, centralised institutes year 3,</td>
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<td></td>
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<td>ITEs, polytechnics and universities</td>
</tr>
</tbody>
</table>

**HEPATITIS B**
- Birth, 1, 5 months

* When the recommended time schedule is not followed, then the time interval between the different doses should be adhered to. Interrupting the recommended schedule or delaying subsequent doses does not reduce the ultimate immunity. There is no need to restart a series regardless of the time elapsed between doses. However, to help ensure seroconversion, completion of the primary series of three doses is recommended.

+ HBIG (0.5 ml) given at the same time as the first dose of vaccine only for babies born to HBeAg (hepatitis B "e" antigen)-positive mothers. An additional dose for babies born to HBsAg-positive mothers at 12 months.
# APPENDIX C

## Clinical and epidemiological features, and prevention and control of selected infectious diseases of importance in child care centres/kindergarten/pre-schools/ student care centres

<table>
<thead>
<tr>
<th>Infectious disease</th>
<th>Signs and symptoms</th>
<th>Incubation period*</th>
<th>Mode of transmission</th>
<th>Infectious period</th>
<th>Prevention and control</th>
<th>Authority to be notified+</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poliomyelitis</td>
<td>Fever, muscle pain, headache, nausea, vomiting, stiff neck/back, flaccid limb paralysis. In severe cases: difficulty in swallowing, speech and breathing, confusion, fits and death.</td>
<td>7-14 days, range 5-35 days</td>
<td>Faecal-oral, respiratory.</td>
<td>A few days before and after onset of illness.</td>
<td>3 doses of trivalent polio vaccine at 3, 4, 5 months of age; booster dose at 18 months of age.</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Chickenpox</td>
<td>Fever 1-2 days, followed by skin eruption. Successive crops appear on the body (scalp, face, limbs, trunk, conjunctiva, mouth, seldom involving the palms and soles) in all stages – macules, papules, vesicles, pustules and scabs.</td>
<td>10-21 days.</td>
<td>Respiratory, direct contact.</td>
<td>1-2 days before onset of rash and not more than 6 days after appearance of the first crop of vesicles.</td>
<td>Chickenpox vaccine is available for children &gt;1 year of age. Isolate all contacts with fever and rash at home.</td>
<td>Yes</td>
<td>Immune after one attack.</td>
</tr>
<tr>
<td>Rubella (German measles)</td>
<td>Fever, headache, malaise, cough, sore throat, enlarged and tender glands at back of neck and behind ears for 1-5 days, followed by a fine maculopapular rash that starts on face and lasting for 3 days. Symptoms subside rapidly with onset of rash.</td>
<td>2-3 weeks, usually 16-18 days</td>
<td>Respiratory, direct contact.</td>
<td>1 week before to 4 days after onset of rash.</td>
<td>Vaccination given together with measles and mumps (MMR) at 1 year of age. Second dose at 11+ years. Isolate all contacts with fever and rash at home, and advise them to stay away from pregnant women.</td>
<td>Yes</td>
<td>Immune after one attack.</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>Sore throat, fever, nasal discharge, hoarseness of voice, malaise. Greyish membrane forms in the throat and may lead to difficulty in breathing and swallowing. Enlarged lymph nodes in the neck.</td>
<td>2-5 days.</td>
<td>Direct contact.</td>
<td>2-4 weeks after onset of illness.</td>
<td>Vaccination with 3 doses of DPT (diphtheria, pertussis, tetanus) at 3,4, and 5 months of age. Booster dose at 18 months of age. Immediately isolate suspected case(s) and seek medical attention.</td>
<td>Yes</td>
<td>Serious disease. Diphtheria vaccination is compulsory.</td>
</tr>
<tr>
<td>Meningitis</td>
<td>May be preceded by a cold, headache, stiff neck, vomiting, high temperature with convulsions or drowsy stupor. Bulging fontanelle most significant sign up to age of 2 years.</td>
<td>2-10 days.</td>
<td>Respiratory, direct contact.</td>
<td>Until recovery.</td>
<td>Vaccination against the disease caused by some bacteria available. Immediately isolate suspected case(s) and seek medical treatment.</td>
<td>Yes</td>
<td>Serious disease.</td>
</tr>
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<td>Infectious disease</td>
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<td>Incubation period*</td>
<td>Mode of transmission</td>
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<tr>
<td>Hepatitis A</td>
<td>Fever, headache, abdominal pain, nausea, diarrhoea, general weakness. Later, yellow discolouration of skin and white of eyes (jaundice), dark coloured urine dark and pale stools. Many cases may have very mild symptoms.</td>
<td>15-50 days.</td>
<td>Faecal-oral.</td>
<td>2-3 weeks before to 1 week after onset of jaundice.</td>
<td>Practise good personal hygiene, avoid eating raw or partially-cooked shellfish e.g. cockles, clams, oysters. Hepatitis A vaccine not routinely given.</td>
<td>Yes</td>
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<tr>
<td>Hepatitis B</td>
<td>Tiredness, mild fever, nausea, jaundice, dark coloured urine. Many cases have no or very mild symptoms.</td>
<td>30-180 days, usually 60-90 days.</td>
<td>Parenteral, perinatal and sexual (contact with blood and body fluid).</td>
<td>Many weeks before onset of symptoms to years after jaundice in chronic carriers.</td>
<td>Vaccination with 3 doses at birth, 1 month and 5 months.</td>
<td>Yes</td>
<td>Serious disease as it can lead to liver failure and liver cancer.</td>
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<tr>
<td>Roseola</td>
<td>High fever 3-5 days, followed by rash or large pink blotches (which fades rapidly) covering whole body. Child may not seem ill despite the high fever (40°C) but he may have convulsion. Fever rapidly subsides with onset of rash.</td>
<td>Uncertain.</td>
<td>Unknown.</td>
<td>Unknown.</td>
<td>No vaccine.</td>
<td>No special measures.</td>
<td>Yes</td>
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<tr>
<td>Whooping cough</td>
<td>Fever and cough which becomes paroxysmal within 1-2 weeks. Paroxysms characterised by repeated violent coughs, followed by high-pitched “whoop”. Vomiting often follows the attack.</td>
<td>6-20 days, usually 7-14 days.</td>
<td>Nasopharyngeal secretion, direct contact, respiratory.</td>
<td>7 days after exposure to three weeks after onset.</td>
<td>Vaccination in the form of DPT (diphtheria, pertussis, tetanus) is recommended. Booster dose at 18 months of age.</td>
<td>Yes</td>
<td>Disease occurs mainly in preschool children; especially dangerous for children &lt;1 year.</td>
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<tr>
<td>Measles</td>
<td>High fever, cough, running nose and conjunctivitis 3-4 days before onset of rash. Rash starts at hair line and spreads down in blotches, fades after 5 days, leaving a stain on the skin for days-weeks. Small red spots with white centre (Koplik’s spots) appear in mouth before the rash. With onset of rash, fever becomes higher and child appears more ill.</td>
<td>8-14 days.</td>
<td>Respiratory, direct contact with secretions.</td>
<td>From just before onset of symptoms to 4 days after onset of rash.</td>
<td>Vaccination using the trivalent MMR (measles, mumps and rubella) vaccine recommended at one year of age. Second dose at 11+ years.</td>
<td>Yes</td>
<td>Can be a serious disease because of its complications. Measles vaccination is compulsory.</td>
</tr>
<tr>
<td>Mumps</td>
<td>Fever, malaise, headache for 2-3 days, followed by painful swelling of salivary glands behind the ears glands for 1 week.</td>
<td>12-25 days, usually 18 days.</td>
<td>Respiratory.</td>
<td>1 week before to 10 days after onset of swelling.</td>
<td>Vaccination using the trivalent MMR (measles, mumps and rubella) vaccine recommended at 1 year of age. Isolate every contact with fever at home.</td>
<td>Yes</td>
<td>-</td>
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<td>Hand, foot and mouth disease</td>
<td>Fever, painful, small ulcers in the mouth, reddish pimple-like rash or small blisters on the hands and feet. Other symptoms include fever, running nose, cough, sore throat, refusal to eat, increased salivation, vomiting and diarrhoea.</td>
<td>2-5 days.</td>
<td>Direct contact, indirectly by articles contaminated by secretions.</td>
<td>Throughout duration of illness.</td>
<td>Isolate every child with symptoms at home. Practise good personal hygiene, disinfect contaminated toys, feeding bottles, teats and other personal items handled by an infected child.</td>
<td>Yes</td>
<td>Serious complications of heart and brain are rare.</td>
</tr>
</tbody>
</table>
| Dengue fever                       | Acute onset of fever (high and continuous) 2-7 days, headache, backache, muscle ache, generalised rash, bleeding manifestation (easy bruising, bleeding gums, nose, skin etc.). | 3-10 days, usually 4-6 days. | Bite of an infected *Aedes* mosquito. | Within 5 days after onset of fever. | Prevent mosquitoes from breeding by removing stagnant water.  
Every other day:  
• Change water in vase.  
• Remove water in plant pot plates.  
• Check premises for containers where rainwater can collect.  
• Get rid of containers or store them upside down under shelter.  
• Clear leaves and stagnant water in drains, roof gutters and garden. | Yes                      | May be difficult to diagnose unless a blood test is done. |

- Incubation period is the interval between exposure to the disease and onset of the first symptoms. For example, if a child has come into contact with someone with chickenpox, he does not develop any symptoms until 10-21 days later. The child should be closely observed during this period and isolated as soon as symptoms develop.

+ Director of Medical Services, c/o Communicable Diseases Surveillance, Ministry of Health (Tel: 1800-3258451; Fax: 62215528 or 62215538). As all notifiable diseases have to be diagnosed and confirmed by registered medical practitioners or scientists, it is their responsibility to inform the relevant authorities. Childcare centres are advised to notify Ministry of Community Development, Youth and Sports of outbreaks so that other centres may be alerted to watch out for similar symptoms.
Under Section 22 Surveillance

The overall health of the children should be checked daily upon arrival, noting any unusual symptoms or behaviour.

The child should not be allowed to attend the child care facility if the child does not appear well enough to participate in activities as usual and/or has any conditions as stated below and requiring removal from the child care setting.

A) The illness prevents the child from participating comfortably in facility activities

B) The illness requires more attention that you can provide without hurting the health and safety of other children in your care.

C) The child has any of the following conditions:

1. Fever - defined as having a temperature of 37.8°C or higher taken under the arm, 38.3°C taken orally, or 38.9°C taken rectally. For children 4 months or younger, the lower rectal temperature of 38.3°C is considered a fever threshold (rectal temperature shall be taken only by persons with specific health training)

2. Signs and symptoms of possible severe illness until medical evaluation allows inclusion. These include:
   - Fever AND sore throat, rash, vomiting, diarrhoea, earache, irritability or confusion
   - Unusual lethargy
   - Loss of appetite
   - Difficulty in swallowing
   - Increasing drowsiness and confusion
   - Headache or stiff neck
   - Uncontrolled diarrhoea
   - Vomiting - 2 or more times in a 24 hour period
   - Sore throat with fever and swollen glands
   - Severe and uncontrolled coughing
   - Difficulty in breathing and wheezing
   - Eye discharge - thick mucus or pus draining from the eye or red eye
   - Yellowish skin or eyes
   - Child is irritable and persistently crying
   - Episodes of fits

3. Mouth sores with drooling, until a medical practitioners determines the condition is non-infectious

4. Rash with fever or behaviour change, until a medical practitioners determines the condition is non-infectious

5. Scabies, head lice, or other infestation
6. Tuberculosis
7. Impetigo
8. Streptococcal throat or other streptococcal infection
9. Chickenpox
10. Pertussis
11. Mumps
12. Hepatitis A virus
13. Measles
14. Rubella
15. Shingles
16. Herpetic gingivostomatitis

The children with the above illnesses should be excluded from the centre until a medical practitioner determines that the child can attend childcare centre.
REFERENCES

Child Care Centres Act (Cap 37A).

Child Care Centres Regulations (Cap 37A, Rg 1).

Environmental Public Health Act (Cap 95).

Environmental Public Health (Food Hygiene) Regulations (Cap 95, Rg 16).

Infectious Diseases Act (Cap 137).

Infectious Diseases (Diphtheria and Measles Vaccination) Regulations (Cap 137, Rg 3).


Ministry of Health – Guidelines for preventing transmission of blood-borne pathogens in child-care/ educational institutions


US Department of Health and Human Services, Public Health Service, Centers for Disease Control, Atlanta, Georgia, 1984. What you can do to stop disease in your child’s day care center - a handbook for parents.
## GLOSSARY OF TERMS

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>Child care centre</td>
<td>A premise at which 5 or more children under the age of 7 years are habitually received for the purpose of care and supervision during part of the day or for longer periods</td>
</tr>
<tr>
<td>Kindergarten</td>
<td>A school which provides a daily programme of at least 3 hours for children of age 3 to 6</td>
</tr>
<tr>
<td>Pre-school centre</td>
<td>Any premise that provides enrichment programmes for children under the age of 7</td>
</tr>
<tr>
<td>Disinfection</td>
<td>Killing of infectious agents outside the body by direct exposure to chemical (e.g. 0.5% sodium hypochlorite solution) or physical agents</td>
</tr>
<tr>
<td>Premises</td>
<td>Any building, enclosure, ground or open air space</td>
</tr>
<tr>
<td>Infection</td>
<td>The entry and development or multiplication of an infectious agent in the body</td>
</tr>
<tr>
<td>Infectious agent</td>
<td>An organism (virus, rickettsia, bacteria, fungus, protozoan, helminth) that is capable of producing infection or infectious disease</td>
</tr>
<tr>
<td>Infectious disease</td>
<td>Any disease set out in the First or Second Schedule of the Infectious Diseases Act (Cap 137) and any other disease caused by an infectious agent</td>
</tr>
<tr>
<td>Isolation</td>
<td>Separation, during the period of communicability, of infectious persons from others in such places so as to prevent or limit the spread of infectious agent from those infected to those susceptible</td>
</tr>
<tr>
<td>Operator</td>
<td>Any person who operates a child care center/ kindergarten/ pre-school centre and includes the owner, financier and promoter</td>
</tr>
<tr>
<td>Registered medical practitioner</td>
<td>Any person who is registered as a medical practitioner under the Medical Registration Act (Cap 174)</td>
</tr>
<tr>
<td><strong>Staff</strong></td>
<td>All employees of the child care center/ kindergarten/ pre-school center</td>
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</tr>
<tr>
<td><strong>Supervisor/ Principal</strong></td>
<td>The person who plans and directs the programme of a child care center/ kindergarten/ pre-school centre and who is directly in charge of the children</td>
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</table>