Infections in daycares and schools

Diseases	Bronchiolitis	Infectious conjunctivitis	Whooping cough	Epidemic diarrhea	Erythema infectiosum, or fifth disease
Symbols[1]		[Report case to health centre] (In the event of 3 or more cases, or 2 cases in the same group)	[Reportable disease (MADO)] [Urgent intervention] [Report case to health centre] [Exclude from daycare]	[Reportable disease (MADO)] [Urgent intervention] [Report case to health centre] [Exclude from daycare]	[Report case to health centre]
Definition	Acute viral infection of the lower respiratory tract caused, most of the times, by the respiratory syncytial virus (RSV). More frequent among children less than 2 years old.	Eye infection caused by a virus or bacterium	Highly contagious bacterial disease. May be very serious among nursing infants.	Intestinal affliction that may be caused by various infectious agents. Runny and frequent stools in at least 2 children of the same group in less than 48 hours.	Benign viral disease characterized by a rash. More frequent among children over 5 years. Occurs especially in winter and spring.
Incubation period[3c]	From 2 to 8 days.	Variable. Generally between 12 and 72 hours.	From 7 to 10 days, rarely more than 14.	Variable. From a few hours to a few days.	Generally from 4 to 14 days, but may be as long as 20 days.
Period of infectiousness	Before the appearance of the disease. During the disease and even the convalescence. Up to 3 or 4 weeks, especially among young children and immunosuppressed[3d] individuals.	Viral infection: from 1 to 2 weeks. Bacterial infection: especially during discharge period. Infectiousness is greatly reduced with treatment.	Begins with nasal discharge. If treated: up to 5 days after the start of treatment. If not treated: up to 3 weeks after the onset of coughing fits, sometimes up to 6 weeks among children less than 12 months old. Infectiousness is probably minimal if individuals do not cough.	Variable. Usually during the acute phase of the disease.	Up to 7 days before the appearance of the rash. Ends when the rash appears, except for immunosuppressed[3d] individuals who may be infectious for months, even for years. Children with rash only on hands and feet are considered infectious.
Duration of the disease	From 3 to 7 days for the acute phase. Healing takes 1 to 2 weeks.	Variable.	From 6 to 10 weeks. An infection of the upper respiratory tract during the year that follows may cause symptoms similar to those of whooping cough.	Variable.	Up to 3 weeks or longer.
Mode of transmission[4]	[Droplets] [Direct contact] [Indirect contact]	Through contact with the ocular or respiratory secretions of an infected individual, via the hands, objects (towels, washcloths, makeup) or pool water. [Direct contact] [Indirect contact]	[Droplets] [Direct contact] [Indirect contact]	Through ingestion of the infectious agent following a contact with contaminated hands, objects or surfaces. Through ingestion of contaminated foods or water. [Direct contact] [Indirect contact]	Through contact, droplets[3e] and from mother to child during pregnancy. [Droplets] [Direct contact] [Indirect contact]
Symptoms	Hollow cough, nasal discharge, low fever, wheezing, increased respiratory rate, agitation, indrawing (depression of the chest wall with each breath between the ribs, above and below the sternum) and flaring of the alae nasi. Otitis media may be present.	Redness, swollen eyelids, sensitivity to light, purulent discharge, eyelids crusted in the morning, impression of a foreign matter in the eye.	General discomfort, lack of appetite, nasal discharge, weeping eyes and coughing fits. Coughing fits are episodes of prolonged and uncontrollable coughing followed by several hours without symptoms. They often end with vomiting. Infants may experience pauses in breathing and manifest cyanosis (blue tint of the skin and mucous membranes). A cough with whooping (loud wheezing at the end of a coughing fit) is characteristic of whooping cough.	Nausea, vomiting, abdominal pain, diarrhea, fever.	At the beginning non-specific symptoms (headaches, discomfort, muscular pain). Rash starting on the face (very red cheeks) and spreading to the torso and limbs. The rash is aggravated by sunlight and heat as well as physical exercise. Sometimes, rash only on hands and feet. Asymptomatic in 25% of cases. Infection during pregnancy can have harmful effects on the foetus.
Treatment	Depending on the general condition, child must be seen by a physician who will decide if treatment is required. Hospitalization may be necessary for the more cases. Keep well hydrated.	Ophthalmic antibiotic ointment or drops for bacterial conjunctivitis only.	Antibiotics to reduce the period of communicability[3b]. Rest.	Have the patient drink small quantities of oral hydration solution frequently (e.g. PedyaliteMD, GastrolyteMD) Refer to the physician if presence of blood in the stool, or if diarrhea is accompanied by frequent vomiting, a deteriorated general condition or high fever.	No specific treatment. Treatment may be recommended for some immunosuppressed[3d] individuals.
Prevention and control measures	Reinforce respiratory hygiene measures. Reinforce hygiene measures especially handwashing cleaning and disinfection of surfaces and toys. Identify the most vulnerable children (cardiac or pulmonary disease, immunosuppressed[3d] individuals or premature babies less than 6 months old). Suggest parents to check with their physician whether it would be preferable to keep these children at home during the peak of the RSV infections (January, February) and whether preventive treatment should be administered.	Intensify hygiene measures. Clean eyes secretions, if necessary, with a compress, cotton or paper tissue, going from the inside of the eye toward the outside. Use a separate tissue for each eye and for each child, discarding used tissues immediately in a closed wastebasket. Wash your hands and the child's hands before and after application of treatment and after any contact with contaminated secretions. No swimming in case of discharge from eyes. In the event of 3 or more cases, or 2 cases in the same group, notify the health centre and inform the parents according to the health centre's advice.	Reinforce respiratory hygiene measures. Reinforce hygiene measures especially handwashing and cleaning and disinfection of surfaces and toys. Check with the parents that the diagnosis was made by a physician. Notify the health centre, or Public Health, and inform the parents according to the health centre's advice. Check with the health centre for the procedures to follow for the person in contact[3a]. Monitor the appearance of symptoms among persons in contact[3a] and refer them to the physician if necessary.	Reinforce hygiene measures especially handwashing, changing diapers and disinfection of surfaces, toys and rooms. In case of an outbreak, use of alcohol-based gel alternated with frequent handwashing with water and soap is recommended. Use only paper diapers. Do not allow those who prepare and serve meals to change diapers. Children with diarrhea should not use pools. Check the possibility of food poisoning. In the event of several cases of diarrhea in the same group, inform the health centre, or Public Health, and check the procedure to follow. Inform the parents according to the health centre's advice. Monitor the appearance of symptoms among individuals in contact[4] and refer them to the physician if necessary.	Reinforce respiratory hygiene measures. Reinforce hygiene measures, especially handwashing and cleaning and disinfection of surfaces and toys. Check with the parents that diagnosis was made by a physician. Notify the health centre and inform the parents according to the health centre's advice. Refer the following to their physician: pregnant women, individuals with hemolytic anemia and those who are immunosuppressed[3d].
Exclusion	Do not exclude the child if his or her state of health permits him or her to participate in group activities.	No exclusion, except in the case of an epidemic. In case of fever or extensive symptoms in the eye, refer the child to the physician and readmit him or her according to the physician's recommendation.	Exclude the child until the end of the period of communicability[3b].	Exclude the child if he or she: • is too sick to participate in day-care activities; • has a fever; • has vomited two or more times over the past 24 hours; • has blood or mucus in his or her stools; • uses diapers or is unable to use the toilet for bowel movements.	Do not exclude the child if his or her state of health permits him or her to participate in group activities.

Diseases	Impetigo	Influenza (Flu)[2]	Viral meningitis	Otitis media	Streptococcal pharyngitis and tonsillitis and scarlet fever
Symbols[1]	[Report case to health centre] (In the event of 2 or more cases) [Exclude from daycare]	[Report case to health centre]	[Report case to health centre]		[Report case to health centre] [Exclude from daycare]
Definition	Bacterial skin infection caused by Streptococcus group A or *Staphylococcus aureus*.	Acute and highly contagious viral infection caused by the influenza virus.	Inflammation of the lining of the brain caused by various types of viruses, often enterovirus type. Especially frequent in summer and fall.	Middle-ear inflammation caused by bacteria or viruses. Often occurs after a cold or respiratory allergies.	Throat infection caused by Streptococcus group A. If the infection is accompanied by a characteristic rash, it is more likely scarlet fever.
Incubation period[3c]	From 7 to 10 days.	From 1 to 4 days.	From 3 to 6 days.	Variable depending on the infectious agent and the child's predisposing factors.	From 1 to 5 days.
Period of infectiousness	Rarely more than 24 to 48 hours after the start of oral administration of antibiotics. Until the lesions are dry, if local treatment is applied (ointment).	24 hours before the onset of symptoms and up to 7 days after.	Correspond to the period when the virus is excreted in the stools, which means several weeks. However, meningitis occurs very rarely among persons in contact[3a]. Respiratory excretion lasts seven days.	Otitis is not contagious.	Up to 24 hours after the start of antibiotic treatment. If not treated, from 2 to 3 weeks.
Duration of the disease	Rarely more than 7 days with adequate treatment.	From 2 to 7 days, but coughing and fatigue may last more than 2 weeks.	Rarely more than 10 days.	Variable.	Rarely more than 7 days.
Mode of transmission[4]	It is often a superinfection of skin lesions by bacteria already present in the child' nose or skin. [Direct contact] [Indirect contact]	[Droplets] [Direct contact] [Indirect contact]	[Droplets] [Direct contact] [Indirect contact]	Otitis is often a complication of a cold, which is what is transmitted from one child to the next.	[Droplets] [Direct contact] [Indirect contact]
Symptoms	Purulent and crusted skin lesions, especially on the face (nose, mouth, chin and behind the ears. The lesions may also spread to the torso, hands and buttocks. Generally heal without scaring.	Fever, coughing, sore throat, muscular pain, fatigue, exhaustion, vomiting, abdominal pain and diarrhea.	Sudden onset with fever, headaches and stiff neck. Possibility of respiratory, gastro-intestinal and skin (rash) symptoms.	Fever, pain, prolonged crying, irritability in nursing infants, diminished appetite, arousal from sleep and ear discharge.	Fever, sore throat, nausea, vomiting, loss of appetite, headaches, swollen lymph glands on the neck and throat redness. Scarlet fever: besides the above symptoms, raspberry tongue and rash on the neck, chest, crook of the elbows, knees and groin.
Treatment	Oral or local (ointment) antibiotic. If possible, cover the lesions with a bandage. Clean the skin with soapy water and dry well. Ensure the child's nails are short and that he or she does not scratch.	Rest, acetaminophen as needed. Have the patient drink more liquids. Parents of a child with chronic disease or immunosuppressed[3d], should advise the physician because specific treatment may be applied to avoid complications.	None.	The child must be seen by a physician, who will decide whether antibiotics are necessary. Acetaminophen in case of fever or pain.	Oral antibiotics. Acetaminophen as needed. Rest, have the patient drink more liquids, give soft, cold foods.
Prevention and control measures	Reinforce hygiene measures, especially handwashing. Check with the parents that diagnosis was made by a physician. Notify the health centre in the event of 2 or more cases and inform the parents according to the health centre's advice. If there are 2 or more cases at the daycare, administering oral treatment along with topical treatment with help control the outbreak by reducing the contagious period[3b]. Monitor the appearance of symptoms among persons in contact[3a] and refer them to the physician if necessary.	Reinforce respiratory hygiene measures. Reinforce hygiene measures, especially handwashing and cleaning and disinfection of surfaces and toys. Humidify rooms. Check with the parents that diagnosis was made by a physician. Notify the health centre and inform the parents according to the health centre's advice. Annually vaccinate individuals at risk, including children aged 6 to 24 months, as well as day-care personnel who care for children under 2 years.	Reinforce hygiene measures, especially handwashing and diaper changing technique. Clean and disinfect surfaces and toys. Reinforce respiratory hygiene measures. Check with the parents that diagnosis was made by a physician. Notify the health centre and inform the parents according to the health centre's advice.	Make sure the child drinks in a seated position. Drinking in a lying position can lead to development of otitis. Limit use of a pacifier, especially for children older than 12 months. Administer saline nasal drops. In case of ear discharge, try to contain the flow.	Reinforce respiratory hygiene measures. Reinforce hygiene measures, especially handwashing and cleaning and disinfection of surfaces and toys. Check with the parents that the diagnosis was made by a physician. Notify the health centre and inform the parents according to the health centre's advice. If symptoms appear among persons in contact[3a], refer them to the physician. If symptoms appear among individuals with varicella, refer them to the physician.
Exclusion	Exclude the child for at least 24 hours after the start of the treatment. Without treatment, exclusion until the lesions disappear.	Do not exclude the child if his or her state of health permits him or her to participate in group activities.	The child may return to the day-care once his or her state of health permits him or her to participate in group activities.	Do not exclude the child if his or her state of health permits him or her to participate in group activities.	Exclude the child up to 24 hours after the start of treatment and until his or her state permits participation in group activities.

Diseases	Hand, foot and mouth disease	Chickenpox	Cold	Pediculosis (Lice)
Symbols[1]		[Report case to health centre]		[Report case to health centre] [Exclude from daycare]
Definition	Infections caused by viruses of the Coxsackie group. More frequent in summer and fall.	Highly contagious viral disease occurring all year long, but most often at the end of winter and early in the spring.	Acute viral infection of the upper respiratory tract caused by several types of viruses.	Parasitic infestation of the scalp. Epidemics of pediculosis are frequent in daycares.
Incubation period[3c]	From 3 to 6 days.	From 10 to 21 days. Most often from 14 to 16 days.	From 12 to 72 hours.	From 7 to 10 days.
Period of infectiousness	Maximal when symptoms are present.	From 1 to 2 days before the appearance of the rash and up to 5 days after, or until the lesions form a crust.	From 24 hours before the onset of symptoms up to 5 days after.	Until the destruction, though effective treatment, of viable eggs (nits) and live lice in the hair and personal effects.
Duration of the disease	Generally less than 10 days.	From 7 to 14 days.	From 2 to 10 days.	As long as effective treatment has not been applied.
Mode of transmission[4]	[Droplets] [Direct contact] [Indirect contact]	[Droplets] [Direct contact] [Indirect contact]	[Through the air] [Direct contact] [Indirect contact]	Primarily through head-to-head contact with an infected individual. More rarely, through contact with an infected individual's personal effects (brush, comb, hat, etc.)
Symptoms	Fever and redness in the form of blisters around the mouth and on the hands and feet.	Mild fever, generalized rash accompanied by itching. The rash evolves over time: redness, blisters, crust.	Nasal discharge, weeping eyes, sore throat, coughing, mild fever.	Itching, scratches or secondary infections due to scalp infestation. Most individuals have no symptoms.
Treatment	No specific treatment.	Depending on the child's state of health, a physician may prescribe antivirals. Acetaminophen for fever. Keep the skin very clean. To avoid scaring, keep nails short and do not scratch.	Rest. Have the patient drink more liquids. Acetaminophen in case of fever.	Local treatment: apply anti-lice cream or shampoo twice with 9 days between applications or three times with 1 week between applications. A fine comb should also be used on damp hair. If live lice (less than 6 mm from the scalp) are observed 17 days after first application of the product, the recommendation is to repeat immediately with another product. Preventive treatment for non-infested individuals is not recommended.
Prevention and control measures	Reinforce hygiene measures, particularly handwashing and diaper-changing technique. Clean and disinfect surfaces and toys. Reinforce respiratory hygiene measures,	According to the regular vaccination calendar for Nunavik children, the vaccine against chickenpox is administered at the age of 18 months. The chickenpox vaccine may be administered within 5 days after contact with an individual with chickenpox. Notify the health centre and inform the parents according to the health centre's advice. Refer the following to the physician: immunosuppressed[3d] individuals and pregnant women who have never had the disease. Reinforce respiratory hygiene measures. Reinforce hygiene measures, especially handwashing and cleaning and disinfection of surfaces and toys.	Reinforce hygiene measures, especially handwashing and cleaning and disinfection of toys. Teach the child to blow his or her nose, use a paper tissue and discard the tissue immediately in the wastebasket. Teach the child to cover his or her nose and mouth by using the crook of the elbow when coughing or sneezing. Properly ventilate and humidify rooms.	Do not share personal items (hairbrushes, combs, hat, pillowcases). Notify the health centre. Send a letter to all parents.
Exclusion	Do not exclude the child if his or her state of health permits him or her to participate in group activities.	Do not exclude the child if his or her state of health permits him or her to participate in group activities.	Do not exclude the child if his or her state of health permits him or her to participate in group activities.	Do not exclude the child from the day-care until the first application of treatment.

[2] Differences between Flu and Cold

SYMPTOMS	Flu	Cold
Fever	• Common • Temperatures between 38 °C and 40 °C (between 100,4 °F and 104 °F) • Sudden onset	• Rare
Cough	• Common • Sudden onset	• Common • Mild or moderate
Headache	• Common • Sometimes intense	• Rare
Aches and pains	• Common • Sometimes intense	• Rare
Fatigue	• Common • Intense • Duration : A few days, sometimes longer	• Common • Mild
Nausea and vomiting	• Common, especially in children • Often accompanied by diarrhea and abdominal pain in children	• Rare • Mild
Runny nose or nasal congestion	• Rare	• Common
Sneezing	• Rare	• Common
Sore throat	• Rare	• Common

Source : Portail santé mieux-être (http://sante.gouv.qc.ca/conseils-et-prevention/differences-entre-la-grippe-et-le-rhume)

[3] Definitions of terms

a) **Persons in contact:** any child or adult having been in contact with an infected person or contaminated environment, such that he risks contracting the disease.

b) **Period of communicability:** period during which an infected person can transmit the infection.

c) **Incubation period:** interval between exposure to an infectious agent and the appearance of the first sign or symptom of the disease.

d) **Immunosuppressed:** said of a person whose immune system is deficient and is incapable of adequately defending against microbes.

e) **Droplet:** small drop of respiratory secretion projected into the air when a person coughs or sneezes.

Before informing parents

Below is a simple procedure to follow when a parent informs you that his child has a communicable infection:

1. First, check with the parent that the diagnosis has been confirmed by a physician.
2. Next, contact the CLSC[5] and consult the resource person on the best way to inform the parents concerned. In the case of a MADO[5], if the CLSC cannot be reached, contact the DPH[5]. Normally, the CLSC has a standard letter adapted to the situation and which informs and reassures the parents.
3. In your letter, make sure not to name the persons affected or concerned, out of respect for confidentiality.

The CLSC's resource person will also be in a position to respond adequately to other parents who may request advice relative to the letter's content.

For better prevention

It is important to know and consult the nurse of your CLSC who works in the field of infectious diseases in your region's daycares and schools. Do not hesitate to contact her when a case is reported (e.g., conjunctivitis, chickenpox) in order to take the appropriate preventive measures. The problem could thus be resolved more rapidly and cause fewer worries.

You can facilitate your task, when the time comes, by establishing in advance a procedure to follow when a case of an infectious disease is reported in a daycare. As needed, contact the CLSC to obtain the required support.

[5] Abreviations

CLSC :	Local Community Service Center
DPH :	Direction of Public Health
MADO :	Reportable disease

[1] Symbols

- Reportable disease (MADO)
- Urgent intervention
- Report case to health centre
- Exclude from daycare

[4] Modes of transmission

Through direct contact :
Transmission through direct contact occurs when there is close physical contact without an intermediary between an infected person and another person. Examples: skin-to-skin, head-to-head, mouth-to-mouth, mouth-to-wound (bite) contact.

Through indirect contact :
Transmission through indirect contact occurs when a person comes into contact with a contaminated object or hands and transfers the microbe to his mouth, nose, eyes or other site that could constitute a port of entry for the infection. Examples: contaminated pacifier that a child places in his mouth, fingers he inserts in his nose, makeup crayon that contaminates a skin lesion.

Through droplets[3e] :
Transmission through droplets occurs when an infected person projects respiratory droplets into the air by coughing, sneezing or speaking. Such droplets are projected a short distance into the air and land on the mucous membranes of the nose or mouth of another person. They can also transmit the infection when they land on the conjunctiva. Example: influenza is transmitted this way.

Through the air :
Airborne transmission occurs when the microbe is present in fog droplets[3e] or on dust particles suspended in the air and then inhaled by a person. The microbe can remain in the air for a long period and can be dispersed by air currents over a long distance. Example: the measles virus is transmitted this way.

Measures for respiratory hygiene

1. Cover your mouth and nose with a paper tissue when coughing or sneezing.
2. Discard the tissue in the garbage.
3. If no tissue is available, cough into the crook of the elbow or the upper arm.
4. Wash hands.

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RÉGIE RÉGIONALE DE LA SANTÉ ET DES SERVICES SOCIAUX DU NUNAVIK
NUNAVIK REGIONAL BOARD OF HEALTH AND SOCIAL SERVICES

Source: Infections in childcare centres
Ministère de la Famille et des Aînés
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