

Medical Officer of Health Environmental Health ADVICE

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Introduction

Many young children spend much of their day in early childhood centres. Recent assessments have identified deficiencies which could easily be addressed to minimise the spread of infection. Over the next few editions of EH Advice we will highlight these and suggest solutions.

The onset of winter leads to decreasing natural ventilation within houses as everyone tries to retain heat within their house. Unfortunately this encourages the growth of moulds, which affect the health of sensitive people. We touch on this briefly. There have been several well-publicised episodes of waterborne illnesses in recent times in New Zealand. We thought it would be useful to give some further information on these conditions as their management can involve several agencies.

Preventing spread of infection in Early Childhood Centres

Early childhood centres play an important role in the education, health and life of pre-school children. They present a number of potential risks to children's health and safety, particularly disease transmission. These have implications also for the wellbeing of the wider community, particularly friends, teachers, parents, caregivers and other family members of the children attending the centres. Thus the identification, assessment and management of these threats is a priority for the public health service. The Secretary of Education relies on advice from designated health protection officers as to the adequacy and suitability of the health and safety provisions for children attending early childhood centres, particularly in the granting of licenses by the Ministry of Education.

Points of concern highlighted during recent assessments include:

1. handwashing practices of staff and children
2. supervision of toileting and handwashing
3. changing and disposing of dirty nappies
4. attention to cleaning routines and procedures.

The following are some tips:

Handwashing

Handwashing is the single most effective technique for preventing and controlling infectious diseases in child care settings.

Children should be encouraged to wash hands carefully:

- ▶ when they arrive at the centre
- ▶ before eating food or drinking
- ▶ after going to the toilet
- ▶ after handling animals
- ▶ after playing outside

Childcare workers should do the same and also:

- ▶ before food preparation
- ▶ after handling infants
- ▶ after blowing noses
- ▶ after cleaning

Supervision of toileting and handwashing

Most centres have a policy that children and staff should wash their hands after toileting, after handling animals and before having food. In practice, there is rarely supervision of this. Children should report back to teachers after toileting to check they washed their hands properly.



Changing Nappies - A Safe Practice

Many illnesses are spread through contact with faeces. A safe practice for changing nappies is essential.

The following apply:

- ▶ Wash your hands before starting to change the nappy
- ▶ Place disposable paper towels on the change table.
- ▶ Always wear gloves for a "dirty" nappy.
- ▶ Remove the child's nappy and any soiled clothes. Put them in a plastic bag immediately.
- ▶ Clean the child's bottom.
- ▶ Remove the towels and put in the bin.
- ▶ Remove the gloves carefully before you touch the child's clean clothes. Do not let your skin touch the outer contaminated surface of the glove. Put gloves in the bin.
- ▶ Dress the child.
- ▶ Wash the child's hands and take child away from the change table.
- ▶ Clean the change table.
- ▶ Wash your hands and dry with a paper towel.

Nappy Disposal

Excess faeces should be disposed of down the toilet. Soiled nappies should be stored in containers with tight-fitting lids where children cannot reach them.

Cleaning the nappy change table (mat)

- ▶ After each change, the table (mat) should be washed well with detergent and warm water. Paper towels should be used to rub the surface and then disposed of.
- ▶ If faecal matter spills onto the change table (mat) it should be cleaned with detergent and warm water, then wiped with bleach and left to dry.
- ▶ Hands should be washed properly and dried with a paper towel.
- ▶ The surface of the change table (mat) should be disinfected at the end of a nappy changing session and at the end of the day by wiping the area with diluted bleach and leaving for as long as possible.

Cleaning Routines and Procedures

A good cleaning schedule clearly identifies:

- ▶ a responsible person
- ▶ utensils / equipment / areas that should be cleaned
- ▶ a method of cleaning including cleaning agents
- ▶ frequency of cleaning

Using Bleach as a Disinfectant

Disinfectants kill micro-organisms (e.g. bacteria, viruses, etc.) that can cause illness. To work properly disinfectant needs:

- ▶ enough time to kill the germs (for blood or other body fluid spills leave the bleach on the surface for 30 minutes)
- ▶ to be used in the right concentration
- ▶ a clean surface to be able to get to the germ (the area or the item should be thoroughly cleaned with soap or detergent and water).

Household bleach is a high level disinfectant capable of killing nearly all germs. Bleaches contain hypochlorite, the chemical that kills illness-causing organisms. Supermarket bleaches are sold in different strengths (usually 2%-5% hypochlorite) that are written on the label.

Different strengths of bleach are needed in varying situations. High-risk areas are those where there have been spills of blood or vomit, or where there are likely to be faeces or body waste. The following outline how much water should be added to make a disinfectant of the right strength.

High risk areas

Strength of bleach		Disinfectant recipe	
%	ppm	Parts of bleach	Parts of water
2	20,000	1	3
3	30,000	1	5
4	40,000	1	7
5	50,000	1	9

General areas

Strength of bleach		Disinfectant recipe	
%	ppm	Parts of bleach	Parts of water
2	20,000	1	40
3	30,000	1	60
4	40,000	1	80
5	50,000	1	100

Because it is not feasible to have different concentrations of diluted bleach in the centre it is recommended to make a 1 in 10 dilution of bleach (1 cup of bleach plus 9 cups of water using 5% hypochlorite strength of bleach) for use in the centre each day. A fresh solution of bleach should be prepared each day, as the chlorine deteriorates over time. Exposure to light and heat can also affect its ability to kill germs. Clean items before using bleach. Be aware of allergies to bleach and possible irritation to nose, lungs and skin. Wear gloves if you need to. Store disinfectants and diluted disinfectants safely and label them properly.

Recommended Health and Safety Resources for Early Childhood Centres

- ▶ Healthy Messages, Ministry of Health, 1997.
- ▶ Staying Healthy in Child Care, National Health and Medical Research Council of Australia, 1997.
- ▶ Assessment Information for Early Childhood Centres, Public Health Protection, 1999.

▶ Further information is available via the Duty Health Protection Officer, Environmental Programme Tel (09) 262 1855.

Leptospirosis

What is leptospirosis?

Leptospirosis is a bacterial disease that affects humans and animals. Bacteria of the genus *Leptospira* cause it. Illness usually begins abruptly with fever and other symptoms two days to four weeks after exposure. Leptospirosis may occur in two phases; after the first phase, with fever, chills, headache, muscle aches, vomiting or diarrhoea, the patient may recover for a time but become ill again. If the second phase occurs, it is more severe; the person may develop kidney or renal failure or meningitis. This is known also as Weil's disease. Rare cases are fatal. Leptospirosis is confirmed by laboratory tests on blood or urine.

How do people get leptospirosis?

Outbreaks are usually caused by exposure to water contaminated with the urine of infected animals. Many different animals carry the bacterium; some are symptom free. *Leptospira* organisms have been found in cattle, pigs, horses, dogs, rodents and wild animals. Humans become infected through contact with water, food, or soil containing urine from infected animals. This may happen by swallowing

contaminated food or water or through skin contact, especially with mucosal surfaces, such as the eyes or nose, or with broken skin. It is not spread from person to person.

Where is leptospirosis found?

It is found worldwide but is most common in temperate or tropical climates. It is an occupational hazard for those working outdoors or with animals, e.g. farmers (especially dairy farmers), sewer workers, veterinarians, fish workers, or military personnel. It is a recreational hazard for campers or those who participate in outdoor sports areas and has been associated with swimming, wading and whitewater rafting in contaminated lakes and rivers.

How is leptospirosis treated and prevented?

The disease is treated with antibiotics with the best response if given early in the course of the disease. The risk of acquiring leptospirosis can be reduced greatly by not swimming or wading in water that may be contaminated with animal urine. Those exposed to contaminated soil or water, whether recreationally or occupationally should wear protective clothing, including footwear and gloves.

Naegleria Infection or Primary Amoebic Meningo-encephalitis

What is Naegleria?

Naegleria is a microscopic amoeba found commonly in the environment. Only one species, *Naegleria fowleri*, has been found to infect humans.

Where is Naegleria found?

It is identified worldwide. Most commonly, the amoeba is found in the soil and in warm stagnant bodies of fresh water, such as lakes, rivers, and hot springs, unchlorinated swimming pools, and in warm wastewater from power plants.

How do infections with Naegleria occur?

Infections are rare in New Zealand. The amoeba enters the body through the nose while the person is swimming

or diving and travels to the brain and spinal cord. Infection is most common in the summer. It is not passed from person to person.

What are the signs and symptoms of Naegleria infection?

Headache, fever, nausea and vomiting, stiff neck, and confusion are signs and symptoms of infection (similar to those of acute bacterial meningitis). The incubation period is several days to one week. Treatment is available but most cases are fatal unless diagnosed and treated immediately.

Minimising the risk from Naegleria

Commercial swimming pools should be maintained and operated according

to the *New Zealand Standard 5826: 1985 for the operational management of swimming pools*, particularly Part 1 section 11 which refers to geothermal pools and pools using geothermal waters specifically. Natural, private pools should have warning signs and advice for bathers.

How to prevent an infection with Naegleria

- ▶ Do not swim in warm, stagnant, fresh water
- ▶ Do not swim in polluted water
- ▶ Obey warning notices advising either not to swim or to keep your head above water
- ▶ Hold your nose, or use nose plugs when jumping or diving.

Moulds in the Environment

What are moulds?

Moulds are microscopic fungi that live on plant or animal matter. No one knows how many species of fungi exist but estimates range from tens of thousands to three hundred thousand or more. Most are filamentous organisms and the production of spores is characteristic of fungi in general. These spores can be air, water, or insect-borne.

What are some of the common indoor moulds?

- ▶ Cladosporium
- ▶ Aspergillus
- ▶ Penicillium
- ▶ Mucor
- ▶ Alternaria

How do moulds affect people?

Some people are sensitive to moulds. Exposure to moulds can cause symptoms such as nasal stuffiness, eye irritation, or wheezing in such individuals. Some, such as those with serious allergies to moulds, may have more severe reactions such as fever and shortness of breath. These responses may occur among workers exposed to large amounts of moulds at work, e.g. farmers working around mouldy hay. People with chronic illnesses, such as chronic obstructive lung disease, may develop mould infections in their lungs.

Where are the moulds found?

Moulds are found in virtually every environment and can be detected, both indoors and outdoors, year round. Mould growth is encouraged by warm and humid conditions. Outdoors they can be found in shady, damp areas or places where leaves or other vegetation is decomposing. Indoors they can be found where humidity levels are high, such as basements or showers.

What areas have high mould exposure?

- ▶ Antique shops
- ▶ Saunas
- ▶ Mills
- ▶ Flower shops
- ▶ Greenhouses
- ▶ Farms
- ▶ Baches
- ▶ Construction areas

How can people decrease mould exposure?

Sensitive individuals should avoid areas that are likely to have mould, such as compost heaps, cut grass, and wooded areas. Inside homes, keeping humidity levels below 40% and ventilating showers and cooking areas can slow mould growth. Mould growth can be removed with commercial products or a weak bleach solution (one cup in five litres of water). Where mould exposure is un-avoidable in the workplace, sensitive people should wear a tight-fitting facemask.

Specific Recommendations

- ▶ Keep the humidity levels in the house below 40%
- ▶ Be sure the home has adequate ventilation, including exhaust fans in the kitchen and bathroom
- ▶ Sensitive people should consider using an air conditioner or dehumidifier during humid months
- ▶ Add mould inhibitors to paint before application
- ▶ Clean bathrooms with mould killing products
- ▶ Do not carpet bathrooms or basements
- ▶ Remove or replace soaked carpets or upholstery.

Leslie Breach



Leslie Breach is a Health Protection Officer with Public Health Protection's Environmental Health Programme. After qualifying in 1979, Leslie spent time in the Wellington, South Auckland, Rotorua, and North Harbour offices of the former Health Department. There his work involved a wide range of public health issues including food, communicable diseases and environmental health. He developed a keen interest in water and wastewater issues during this time.

Since 1995, when the regional environmental team came into being, he has been based at the South Auckland office. His specialist areas of work involve recreational water and shellfish, including the Marine Biotxin Management Programme and National Shellfish Sanitation programme. Leslie is currently carrying out twelve yearly sanitary surveys of commercial shellfish farms in the Auckland Region. He has completed recently the Bachelor of Applied Science (Environmental Health) degree from Massey University.