

Pediculosis (Head, Body or Crab Lice)



Case Definition

- Infestation by lice species (head, body or crab lice), including adult lice, nymphs and nits.

Reporting Requirements

- Pediculosis is not reportable in Manitoba.

Clinical Presentation/Natural History

Infestations may result in severe itching and excoriation of the scalp or body and secondary infection may occur with ensuing regional lymphadenitis (especially cervical).

Etiology

Pediculus humanus capitis – head louse
Infestation by head lice occurs on the hair.

Pediculus humanus corporis – body louse
Infestation by body lice is on body surfaces, particularly where clothing is tight, as along the seams of inner surfaces.

Phthirus pubis – crab louse
Infestation is usually of the pubic area; lice may also infest facial hair (including eyelashes in cases of heavy infestation), axillae and body surfaces.

Adult lice, nymphs and nits (eggs) infest people. Lice are host-specific and those of animals (such as cats and dogs) do not infest people, although they may be present transiently.

Epidemiology

Reservoir: Infested humans

Transmission:

Head Lice

Direct contact with an infested person's head/hair, or indirect contact with personal belongings such as head gear or pillowcases. Head lice do not spread other diseases.

Body Lice

Direct contact with an infested person or indirect contact with their personal belongings, especially shared clothing. The body louse is the species involved in outbreaks of epidemic typhus, trench fever and louseborne relapsing fever, none of which are endemic in Manitoba.

Crab Lice

Usually transmitted during sexual contact.

Lice will generally leave a febrile host. Fever and overcrowding increase transfer from person-to-person.

Occurrence: Worldwide. Outbreaks of head lice are common among children in schools and institutions everywhere, including Manitoba.

Incubation Period: The life cycle is composed of three stages: eggs, nymphs (three stages) and adults. The most suitable temperature and humidity for the life cycle are 32°C and 70% respectively. Eggs of head lice do not hatch at temperatures less than 22°C. Under optimal conditions, the eggs of lice hatch in seven to 10 days. The nymphal stages last about seven to 13 days, depending on temperature. The egg-to-egg cycle averages three weeks.

Susceptibility and Resistance: Any person may become louse infested under suitable conditions of exposure. Repeated infestations may result in dermal hypersensitivity.

Period of Communicability: As long as lice or eggs remain alive on the infested person. Head and body lice live for seven to 10 days off a host; crab lice live only two days off a host. Nits will not hatch off the head as they are extremely temperature and humidity sensitive. Lice that fall off the head rarely survive longer than 36 hours, move poorly off the head, are usually damaged, and are thus unable to reinfest another person.

Diagnosis

Identification of the lice or nits (eggs). Hair casts, dandruff, paint flecks, hairspray globules, and adherence of skin and tissue particles to the hair shaft as a result of scalp conditions, have all been mistaken for nits. Nits adhere to the hair shaft and are difficult to remove.

Control

Management of Cases:

Body Lice

- Clothing, bedding and fomites should be treated by laundering in hot water, dry cleaning or applying an effective chemical insecticide.
- Contact isolation, if possible, until 24 hours after application of an effective insecticide.
- Specific treatment (see below) is required only for head or pubic lice.

Head Lice (or Pubic Lice)

General Guidelines

- Two treatments, seven days apart, with a known effective product (see below) after diagnosis. (Except SH-206 which should be repeated in 48 hours.)
- Children may return to school or day care the day after treatment with a known effective product. Exclusion from school for 24 hours after treatment is not required.
- Wash items that have come into contact with the infested person's scalp, such as combs, brushes, headgear, pillow cases, shirts/tops with collars, and towels in hot water. The heat of the water or the hot cycle of the clothes dryer will kill any live lice or nits. Items which cannot be laundered should be dry cleaned, or placed in a plastic bag, sealed, and left for 10 days. This measure conforms to the life cycle of the lice, and will ensure that any lice or nits on these items are no longer viable.

- Environmental decontamination or extra housecleaning measures and use of insecticide sprays are not needed.
- Thorough removal of nits is recommended so it is easier to see any new infestations. It also helps avoid unnecessary treatment due to false identification of a reinfestation (i.e., old, dead nits) by an untrained eye. Removal of nits has not been proven to be necessary to prevent spread. Viable eggs are usually too close to the scalp to be removed effectively with a nit comb. Most nits more than 7 mm from the scalp, down the hair shaft, are empty eggs.
- Public health nurses may become involved in problem-solving or providing consultation on difficult cases (e.g., repeated infestations despite numerous treatments, highly anxious or distraught parents). Routine management is the responsibility of the parent(s) or guardian(s), school and family physician.
- Children with head lice should be treated before returning to school or day care the next morning. Immediate exclusion upon diagnosis is not necessary; the child may go home at the end of the school day.
- For difficult case management, the following steps are recommended:
 - confirm/assess the presence of lice/nits;
 - evaluate parental management and product use;
 - assess the likelihood that reinfestation has occurred;
 - recommend retreatment based on assessment;
 - problem-solve the issues;
 - educate.

Important Issues Regarding Cases in Schools

- Communication with parents is extremely important in limiting the negative public response to head lice. This includes information about the control measures in specific situations.
- Children with head lice should be given a letter to inform parents of the diagnosis and the follow-up and treatment required.
- Parents of other children in the schoolroom or bus, or the entire school if the problem appears to be widespread, should be informed when infested children have been identified. The other children's hair should then be inspected for lice.
- Where there are difficulties in buying an insecticide or in carrying out the required steps, the public health nurse may facilitate this with the family.
- A child should not miss more than one day of school because of treatment for head lice. Children do not have to be "nit-free" in order to return to school.
- In large outbreaks where mass screening is contemplated, it should be carried out by volunteers and school staff under the direction of the public health nurse.

Specific Treatment

- There appears to be no satisfactory method to get rid of an infestation apart from chemical treatment with an insecticide that acts on the central nervous system of the louse. These chemicals are thus potentially toxic for humans.
 - All treatment should be applied to the scalp as per product instructions. No product should be applied to open or locally infected skin. Hair should be shampooed with conditioner-free and vitamin-free shampoo before applying lice treatment.
- All treatment should be applied at zero and seven days after diagnosis to ensure that all nits are killed. [Note: Except for SH-206, which is applied at 0 and 48 hours.]. No treatment is 100% effective the first time.
 - R & C can be used to treat pregnant and lactating women and children under two years. SH-206 can be used in children over 30 months. Individuals should discuss treatment choices with a physician, pharmacist or public health nurse.
 - Persons with special medical problems such as skin diseases or a convulsive disorder should discuss treatment with a physician.
 - When live lice are found 24 to 48 hours after the first treatment, a different product should be used (again at zero and seven days).
 - Cases of resistance to lindane products in the United Kingdom have been reported for over 20 years. More recently, reports of permethrin resistance have occurred in Israel, the United Kingdom, France, and the Czech Republic, as well as Manitoba and elsewhere in Canada. It is important, although often difficult, to distinguish among treatment failure from improper or inadequate product use, true resistance and reinfection.
1. **NIX (1% permethrin) or Kwellada-P (1% permethrin) Crème Rinse**
Permethrin is more stable to light than natural pyrethrins (derived from chrysanthemums). Less than 2% of the dose is absorbed and is rapidly inactivated. Claims to continuing residual activity for two weeks post-treatment are controversial. Note that Nix and Kwellada-P are essentially identical preparations — Kwellada (without the "P") shampoo is a lindane preparation and is no longer on the market.

Contraindications: Persons who are sensitive to chrysanthemums or ragweed or who have reacted to NIX or other permethrin-containing products in the past. NIX is not licensed for use in infants or pregnant women and should only be used in these persons where the benefits outweigh the risks. It is not known whether NIX is excreted in breast milk; therefore women who are breast feeding should stop temporarily if NIX is used or use another product, such as R&C, while nursing.

Adverse Reactions: Adverse reactions are infrequent and limited to itching or other transient scalp discomfort in about 1% of users.

2. PMS Lindane Shampoo (lindane)

The active ingredient is 1% gamma benzene hexachloride, also known as lindane. It is not always ovicidal. There is a small amount of scalp absorption after application. However, the amount is not significant unless the skin is inflamed. Note that Kwellada shampoo, which is also a lindane preparation, is no longer on the market.

Contraindications: Lindane is not recommended in children less than six years of age and in persons with a seizure disorder. It has been used safely in pregnant and lactating women; however the benefits should outweigh the risks. Persons with skin diseases should use lindane only after consultation with their doctor.

Adverse Reactions: Lindane is an irritant, especially of the mucous membranes and eyes, and may cause dermatitis if used excessively. There have been reports of neurotoxic reactions to lindane, manifested as convulsions. These were apparently

isolated cases resulting from product misuse. However, lindane is the most toxic pediculicide available, in mice, it is oncogenic.

3. R & C Shampoo and Lice-Enz Mousse (Pyrethrin-Piperonyl Butoxide)

The active ingredients in these products are naturally occurring pyrethrins, found in chrysanthemums.

Contraindications: These products are safe for pregnant and breastfeeding women and children under two years of age. The safety and efficacy of the other products in these same populations has not been determined. Pyrethrin products are contraindicated in persons with known allergy to ragweed or chrysanthemums.

Adverse Reactions: Side effects are rare, and mainly mild. Pyrethrin irritates mucous membranes and may cause allergic dermatitis. There have been reports of corneal damage, and more rarely, anaphylaxis.

[**Note:** This product is available in both 50 ml and 200 ml formats. It is the only one that comes in the large size and has the nit comb enclosed.]

4. EURAX cream (Crotamiton)

This product is used mainly in the treatment of scabies but has also been recommended for treatment of head lice in infants and pregnant women. Its efficacy is less than that of the other pediculicides, and long term studies of safety have not been reported.

Contraindications: Sensitivity to the product. Acutely inflamed skin or raw, weeping areas.

Precautions: Avoid contact with conjunctiva. Keep out of reach of

children. Use with caution during pregnancy, especially the first trimester. It is not known whether the active substance passes into breast milk. Nursing mothers should avoid applying crothamiton to nipples.

Adverse Reactions: Skin irritation may occur.

5. SH-206 Shampoo (AMC)

This shampoo, known as an acetomicellar complex (AMC), is a natural product. No published data are available. It consists of a combination of acetic acid, citronella oil and camphor, to which sodium lauryl ether sulfate is added. Although not entirely defined, it is believed to dissolve the “cement” that protects the shells of the nits, thereby allowing the acetic acid to exert its toxic effects on the lice and nits. AMC is safe for children aged 30 months or older.

Treatment must be given at zero and 48 hours.

Contraindications: AMC should not be used on persons with a history of sensitivity to the product or one of its ingredients. It has not been determined to be safe for use in pregnant or lactating women.

Adverse Reactions: Causes irritation if it comes into contact with eyes, nose, mouth or other mucous membranes. In case of accidental contact, thoroughly rinse affected area with water. If irritation persists, consult a physician.

Management of Contacts:

- Household and other close contacts should be examined for lice. If they are infested, they should be treated.
- Bedmates should be treated prophylactically.

Case Finding

- Public health staff can provide consultation or facilitate training of selected school staff to identify head lice. Routine school screening by public health is not recommended.
- Parents should be advised by the school at the beginning of each year that head lice are common in schools and that they have an important role in early detection and management.

Management of Outbreaks:

- As per this protocol.
- Because schools bring large numbers of children into daily contact, they may serve as a focal point for the transmission of head lice. Control depends on case finding, proper administrative handling of each case, effective treatment and prevention of spread. This requires team work between public health staff, school staff, parents and the community. The primary responsibility rests with the parent(s)/guardian(s). Parents may request assistance in these matters from their local public health office or physician.

Preventive Measures:

- Health education of the public on the value of early detection, safe and thorough treatment.
- Ensure that contacts are located and treated. An untreated source among close contacts is a common reason for recurrence.
- Discourage children from sharing hats, scarves, combs, hair accessories and helmets.
- Note: Keeping hair short or shampooing will not prevent head lice.

Additional Resources

For the Public:

- *What You Should Know About Head Lice.*
- *Head Lice Control Check List.*

Resources available from Audiovisual and Publications Department, Manitoba Health, telephone (204) 786-7112, fax (204) 772-7213.