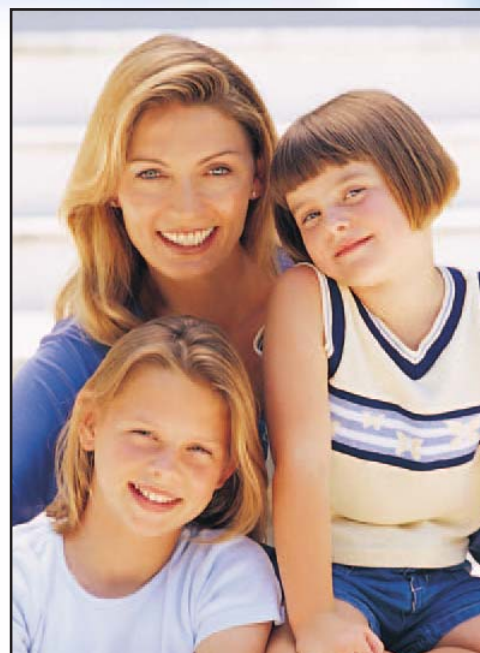




What's the itch about?

The Facts of Lice

By Judy McLeod, RN, CIC; John Embil, MD, FRCPC; Pierre Plourde, MD, FRCPC; and Nancy Gate, RN



What are lice?

Lice are ectoparasites of which only two genres, *Pediculus* and *phthirus*, are pathogenic for humans. The medically important species are: *Pediculus humanus corporis*, the human body louse; *Pediculus humanus capitis*, the human head louse; and *phthirus pubis*, the pubic or crab louse. These species have been responsible for public anxiety, fear, and panic.

The body and head lice are morphologically similar. They are 24 mm in length with grey-white, flat, wingless bodies, three pairs of legs, and pointed heads. The pubic louse is shorter, yet wider, and resembles a crab, thus its colloquial name, the pubic crab.

Regardless of the type of louse, the life cycle is similar. The fertilised adult female will lay approximately 250 to 300 eggs (nits) over her 20 to 30 days of life and these eggs are glued to hair and fibres of clothing. Approximately seven to 10 days after, nymphs emerge and must feed within 24 hours to survive. Over the ensuing two to three weeks, and three successive molts, an adult emerges ready to mate.

Adult lice obtain a blood meal by piercing the skin. They inject saliva into and defecate on the skin, resulting in pruritic papules as a consequence of a hypersensitivity reaction to the antigens present in the saliva.

In this article:

1. What are lice?
2. How is lice treated?
3. What can the family practitioner do about it?

Case

M.W., a mother of two school-aged children, notices an intense itch in her scalp, which interrupts her concentration throughout the day at work. This itch persists over the ensuing three days.

She is then mortified to hear that there is an outbreak of lice at her children's school. She immediately examines her daughter's hair and discovers what she believes are nits and lice (Figure 1). She makes an emergency visit to her family doctor for guidance with her problem.

What about head lice?

Are those flakes lice, or just dandruff? It is hard to tell the difference between the greyish-white nits of head lice and dandruff, as both look the same to

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Figure 1. *Pediculus capitis*. Modified from *Infectious Diseases: Text and Color Atlas*. Second Edition. Farrar W, Wood MJ, Innes JA, et al (eds). Gower Medical Publishing, London, 1980.

the untrained eye. These tiny insects are approximately the size of a sesame seed and move quickly, making them difficult to find. It is usually easier to see the nits that are grey-white- or tan-coloured along the hairline at the neck and behind the ears (Figure 2). The nits remain close to the scalp, are very adherent to the hair shaft, and may be difficult to see. They are not easily washed out of the hair and have to be combed out with a fine tooth comb. Unlike dandruff, which can usually be brushed out or shaken off the hair, nits are firmly attached. Head lice are the most common lice and do not spread other diseases. The skin is reddened and patients usually complain of an itchy scalp. Head lice do not jump from one person to another,

but are spread by close head to head contact and by sharing headgear, such as hats, combs, brushes, ribbons, barrettes, helmets, towels, pillows, and clothing with collars.

How is head lice managed?

Treatments must be undertaken with a known effective pediculicide on the day of diagnosis (day 0) and again on day 7 (Table 1). No treatment will kill all nits the first time. In a hospital,

staff must follow routine practices. They must use gloves, a plastic apron, or a gown when touching infested areas of a person, bedding, or personal belongings until 24 hours after the first treatment with an appropriate, effective pediculicide.

What are pubic lice or crab lice?

Pubic lice, also known as “crabs,” are transmitted by sexual or close body contact (Figure 3). They rarely leave the body unless rubbed off or carried off with a body hair. They reside primarily in the



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pubic hair, but can be seen in the eyebrows, eyelashes, beards, axillary hair, and coarse hair on the back and chest of males. As many as one-third of individuals infested with pubic lice may harbour another sexually transmitted disease.

What is the treatment for head or pubic lice?

Pediculicide cream rinse treats both head and body lice and should be used according to product instruction (Table 2).¹ The products of choice are 1% permethrin products (*e.g.*, Nix Crème Rinse™, Kwellada-P Crème Rinse™). Safe and effective products are also available for pregnant or lactating women, persons with seizure disorders, allergies, and skin diseases, as well as children (*e.g.*, R+C™, Pronto™, Licetrol—naturally occurring pyrethrins).

Pediculicide contact with the eyes should be avoided. Hair does not need to be shaved to kill lice, however, it is easier to apply the pediculicide to short hair. If treatment fails, it is important, although difficult, to distinguish between treatment failure due to improper or inadequate product use, true resistance (some lice are resistant to treatment), and re-infestation. Repeated, almost obsessive, use of pediculicides may result in a predisposition to lice which are resistant to these products.

What are body lice?

Body lice are slightly larger than the other types of lice. They are found on the body and reside in the seams of clothing of an infested person, rather than on the skin of the host. The body louse leaves



Figure 2. Pediculosis. Modified from Peters W, Gilles HM: *Color Atlas of Tropical Medicine and Parasitology*. Fourth Edition. Mosby-Wolfe, 1989.

the clothing only to obtain a blood meal. These lice look reddish-brown after obtaining a blood meal. They occur most commonly in overcrowded and poor socioeconomic conditions, and are spread by direct contact with an infested person, or his or her clothing and bedding. Nits present in clothing are viable for up to one month.

Managing body lice

The person with body lice does not need pesticide treatment. However, the person's clothes must be machine laundered in hot water with detergent for 20 minutes, dried in a hot cycle, and ironed at the seams. If this is not possible, they should be discarded. Body lice on clothing can also be eliminated by dusting the clothing with an appropriate pediculicide.

What about the patient's belongings?

An important factor in the control of lice is the ability to change and wash clothing and personal belongings.

The patient's clothing, bed linens, towels, and pillows should be immediately changed after each

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Table 1

Managing Head Lice

1. Back comb and brush hair thoroughly over a white towel to further assist with the removal of lice and nits before treatment.
2. Wash hair thoroughly with a plain, conditioner-free and vitamin-free shampoo, baby shampoo, or dishwashing soap before treatment. Rinse well.
3. Read the directions of the pediculicide product carefully and follow instructions exactly. Thoroughly saturate the hair and scalp with the pediculicide cream rinse.
4. Work into a sudsy lather and leave on the hair for the recommended application period (usually 10 minutes) then wash with regular shampoo. Rinse well and towel dry.
5. Part hair into sections. Comb the hair and scalp with a fine-toothed comb, one section at a time. A nit detection comb is essential. Remove all nits by grasping them with your fingers and sliding them off the hair strands.
6. Dispose of debris from the hair in a sealed plastic bag.
7. Checking and removing nits (nit picking) should be done daily for 14 days. This takes time, but is the most important step in the management of head lice.
8. When live lice are found 24 to 48 hours after the first treatment, the same product may be prescribed at a higher concentration or a different product may be used at day 0 and day 7.
9. Do not retreat within eight to 12 hours of initial treatment.
10. If you see lice or nits in the eyelashes or eyebrows, apply petroleum jelly twice daily for eight days to smother them.

treatment. These items should be laundered in hot water and dried in the dryer. In a hospital setting, transport these items directly to the hospital laundry in a sealed plastic linen bag.

Washable headgear, such as combs, brushes, clips/barrettes, hats, wigs, or helmets, and other personal items, should be washed in hot water with detergent for 20 minutes, or stored in a sealed plastic bag for two weeks to ensure lice or nits are no longer viable (the sealed bag can also be placed in a freezer for 24 hours). Non-washable personal items and clothing may be stored in a sealed plastic bag for two weeks. Upholstered/carpeted surfaces may be vacuumed.

Advising close contacts

Bedmates should be prophylactically treated with a pediculicide.

Household members and other close contacts of the patient should be examined for head lice for two weeks. If they are infested, they should be treated. Everyone with lice should be treated at the same time. Do not use a lice treatment unless lice or new nits have been found in that person's hair.



Part hair into small sections, looking close to the scalp daily for two weeks in bright or natural light. Check all the hair carefully; go from one side of the head to the other. Brush the hair over a sink or towel.

Supplies can be obtained from a drug store. Nit combs can be used to find adult lice.

A child may return to school or day care after treatment with an effective product. Sprays to clean the environment are not necessary.

Table 2
Available Pediculicides

Trade Name	Active Ingredient	Preparation	Concerns	Method of Use
Nix® Kwellada-P®	Permethrin	Cream rinse	<ul style="list-style-type: none"> • Emergence of resistant organisms • Infrequent dermal reactions 	<ul style="list-style-type: none"> • Wash hair with shampoo, avoid conditioner, rinse with water and dry • Saturate hair and scalp with pediculicide • Leave for 10 mins then rinse with water • Repeat in 7-10 days if necessary
Kwellada®	Lindane	Shampoo	<ul style="list-style-type: none"> • Neurotoxicity has been reported • Infrequent dermal reaction • Avoid in children under 6 • May not kill nits 	<ul style="list-style-type: none"> • Apply to dry hair; use enough to saturate hair • Ensure shampoo comes in contact with all hair, massaging for 4 mins. • Add water to form lather and continue massaging • Thoroughly rinse hair and scalp • Repeat in 7-10 days
R&C Shampoo® Pronto® Licetrol®	Pyrethrin	Shampoo	<ul style="list-style-type: none"> • May not kill nits 	<ul style="list-style-type: none"> • Apply to dry hair, completely saturating it for 10 mins. • Add water and massage to create a lather • Rinse • Repeat in 7-10 days
Lice-Enz®	Pyrethrin	Mousse	<ul style="list-style-type: none"> • Does not always kill nits • Possible anaphylaxis • Possible corneal irritation and damage 	<ul style="list-style-type: none"> • Saturate hair and scalp with foam • Allow contact time of no more than 10 mins. • Wash hair with warm water and shampoo or soap • Repeat in 7-10 days
SH-206®	Acidic acid, citronella oil, camphor, sodium lauryl, ether sulphate	Shampoo	<ul style="list-style-type: none"> • Absent published data • Possible emergence of resistance • Infrequent dermal reaction 	<ul style="list-style-type: none"> • Completely saturate wet hair • Lather and scrub vigorously for 2 mins. • Leave in 10 mins. • Rinse thoroughly with lukewarm water • Remove nits with fine-tooth comb • Repeat in 48 hrs

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Figure 3. Phthirus pubis (the pubic louse); its appearance has given it the nickname "crab louse." Taken from Peters W, Gilles HM: *Color Atlas of Tropical Medicine and Parasitology*. Fourth Edition. Mosby-Wolfe, 1989.

Lice and the GP: Undue fear?

During a physical exam, if the necessary precautions are taken, such as wearing gloves and meticulous handwashing, the primary physician should not be worried about getting lice.

Although undesirable and embarrassing, often causing undue fear and anxiety, lice can be elimi-

nated by prompt identification and treatment. Again, it is important to avoid sharing clothing and personal articles. CME

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