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Pediculosis (lice infestation)
Frequently asked questions

1. What is pediculosis (lice infestation)?

Pediculosis capitis, pediculosis corporis, and pediculosis pubis are disorders caused by infestation by one of three varieties of lice that specifically infest humans. The organisms causing pediculosis capitis, *Pediculus humanus capitis* (head louse) and pediculosis corporis, *Pediculus humanus humanus*, also known as *Pediculosis humanus corporis* (body louse) and are closely related variants of the same species. It is thought that head lice evolved from body lice, as head lice lack a single gene that is found in body lice. Head lice lay nits on the shaft of hair, usually around the ears or nape of the neck, while body lice live and lay eggs on clothing, and move onto the body only to feed. Pubic lice *(Phthiris pubis)* are easily differentiated from body and head lice, and live on the hair of the genitalia, and occasionally on eyebrows and lashes.

Infestation with body lice is of public health importance because three diseases are transmitted by bacteria that are able to infect *Pediculus humanus humanus*, namely trench fever (*Bartonella quintana*), relapsing fever (*Borrelia recurrentis*), and epidemic typhus (*Rickettsia prowazekii*). All three infestations are typically associated with military or civilian populations disrupted by war, but sporadic infections may occur.

2. Who can get pediculosis?

Head lice infestations are common across all social strata, but infestations are more common amongst school-age children, from 2-12 years of age. Body lice infestations have been associated with wars, overcrowding, extreme poverty and homelessness. Pubic lice are sexually transmitted.

3. Where does pediculosis occur in South Africa?

All forms of lice occur in South Africa, although prevalence studies have never been done. Outbreaks of head lice occur commonly at schools across racial and socio-economic strata. Reports of head lice in South African children have anecdotally increased following withdrawal of a number of anti-lice preparations. Body louse infestations have been associated with the civil wars in central and east Africa, when it was estimated that infestation rates in the 1990s during the civil wars in Burundi, Rwanda, and Zaire reached 90–100%

4. How is pediculosis transmitted?

Head lice are primarily transmitted through direct contact with the head of an infested person. Sharing of combs, hair dryers or towels can potentially lead to louse transmission. Body lice are transmitted through shared clothing or physical contact with infested persons. Public lice are transmitted through sexual contact. Transmission via contact with clothing, towels and linen may also occur but this is less common. Condom use does **not** prevent transmission of pubic lice as lice live in genital hair and not on mucous membranes.

5. How does pediculosis affect animals?

Human lice do not infest animals. Humans are the only hosts for *Pediculus humanus humanus/capitis and Phthiris pubis*. The closest genetic relatives to human lice are *Pediculus schaeffii*, which is exclusively found on chimpanzees, and *Phthiris* species which are found on gorillas. It is thought that human lice evolved from a common lice species with these around 13 million years ago. Animal lice generally do not infest humans.

6. What are the signs and symptoms of lice?

When lice bite, they inject an anticoagulant and an anaesthetic substance. Three to four weeks after infestation, these proteins elicit an immune reaction, manifested as itching. Rash is usually not present. Infrequently, secondary bacterial infections of the skin or scalp may occur when scratching damages the skin. Persons with lice may develop impetigo. Head lice lay nits (eggs) on the shafts of hair and when the hair grows, the empty nit cases may become visible. Infection with body and public lice usually manifest by itching. The nits of body lice may be seen on clothing, particularly in the seams.

7. How is lice infestation diagnosed?

Lice infestation is diagnosed through the visualization of adults or nits (eggs) and recognition of their typical body shape. A magnifying glass may be helpful, as lice have a characteristic shape, and are 1-3mm in length. Adult lice may vary in color depending on environmental or host conditions. Lice combs may also be helpful in extracting adults and nits.

8. How is lice infestation treated?

Head and pubic lice may be treated using mechanical interventions, topical anti-louse agents or oral treatment. Mechanical interventions include shaving off affected hair, which is effective, or manual removal of adults and nits by hand or using a fine-toothed lice comb. This has to be repeated every 1-3 days, but frequent re-infestations occur. Topical anti-lice agents include the use of pediculocides (permethrin, permethrin combined with piperonyl, benzyl benzoate, malathion) or agents that stifle the lice such as dimeticone. Resistance to insecticides such as permethrin has been reported. Presently in South Africa, permethrin-containing products include Para Plus Lice Spray and Para Special Lice Spray Dimeticone is available as Controlice Head rinse.

Body lice infestation may be treated by washing clothes at a temperature of >50°C, which eliminates nits, and washing with a scabicidal lotion (Ascabiol).

9. How can lice be prevented?

No methods are 100% effective for the treatment of head lice, and once infested, regular inspections and combing should take place until 7-10 days after the last nits are visualized and removed. Body lice infestation may be prevented through personal hygiene, and washing and/or ironing of clothes.

10. Where can I find out more information?

- Medical/clinical related queries: contact NICD Hotline number +27 (0) 80 021 2552 (for use by healthcare professionals only)
- Laboratory related queries: Centre for Emerging Zoonotic and Parasitic Diseases, Parasitology Reference Laboratory – 011 555 0304/0311