

Head Lice Information for Parents or School Employees

EPIDEMIOLOGY OF HEAD LOUSE INFESTATION:

In order to describe the population groups most likely to contract head lice infestation, we need to first look at the methods by which they are transmitted to patients. A primary method of transmission is host-to-host, usually direct head-to-head contact. For instance, suppose an uninfested child is sleeping with an infested child (such as a sibling or a friend) during a sleepover. If the hair of the infested child contacts the hair of the uninfested child, the lice have a handy hair bridge that is approximately body temperature to facilitate colonization of the unsuspecting new victim.

The mode of transmission is often less direct. Perhaps children's coats are kept in a pile or on adjacent hooks at school or daycare. Lice on the infested child's coat can crawl onto another coat. Then, they will enter the new child's scalp when the coat is worn. Similar fomite-to-person spread is seen when items are shared by successive individuals, such as baseball helmets, computer headphones, and portable CD player headphones. Wearing another person's hats, scarves, or using their combs, brushes or other grooming aids may facilitate spread.

When the mode of transmission is one of these less direct avenues, it is usually from contacting an item that has very recently contacted the host's head. By contrast, lice are seldom contracted through contact with parts of the environment which are not in intimate contact with a head (*e.g.*, tables, couches, chairs, rugs). Lice do not mount expeditions, striking off to find new heads. Instead, since they are obligate human parasites, they have evolved with the instinct to stay on the human at all costs. Thus, the perception of one's entire house being contaminated is mistaken. With the above transmission methods in mind, those most likely to become infested with head lice are patients with a family member or close friend who is infested. The head louse found on humans is a human parasite only, and cannot be contracted from the family dog, cat, or any other animal.

The Life Cycle: Head lice can survive on a human host for approximately 30 days. They generally cannot survive longer than 24 hours off the host. The female head louse lives for about 17-22 days, laying about 10 eggs daily, so she could potentially infest the human with approximately 200 eggs, assuming she locates a sexually mature male whenever fertilization is required. She lays eggs (known as nits) on the hair shaft itself, in the closest proximity possible to the scalp in most cases, at the skin-hair shaft junction. She attaches the egg to the hair with extremely strong cement that allows the nit to remain tightly affixed despite regular combing and washing. Each oval egg is composed of a waxy material that protects the maturing larva, with a perforated top to allow respiration. The larva normally matures to its birth time in 6-9 days, using the body heat radiating from the host's scalp as an incubator. When it is ready to exit the egg case, the immature insect begins to swallow air, expelling it rectally. This forms an expanding bubble which pushes the insect through the top of the egg to the outside. This insect truly flatulates its way to life.

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Following its birth, the nymph must obtain a blood meal from the host within 24 hours or it will not survive. After birth, the nymph matures sexually in 7-10 days, meets a louse of the opposite sex and begins the life cycle anew.

Age: The average person thinks of head lice as a problem of childhood, and this is usually true, in that the most common age infested is 6-11. These children are more likely to engage in activities that allow prolonged head-to-head contact, such as taking nap breaks during school. Of course, once a family has an infested member, age is no longer a consideration since families tend to have close contact with each other regardless of age.

Gender: Females of all ages are more prone to contract head lice than males. Young girls often enjoy close-contact play, such as "dress-up" and grooming each other and themselves. Boys, on the other hand, are sociologically more inclined to play games that do not involve close contact with other boys (chase games, hiding games, and war simulation). Even within the family, the mother is more likely to provide reassurance and nurturing that may involve sustained hugging.

Race: All hair is not alike. The hair of Caucasians, Orientals, and Native Americans is round in cross section, whereas those of African descent have hair that is oval in cross-section. The lice that predominate in the U.S. are thought to have arrived with the early Caucasian settlers. Having evolved with their hosts, they are only able to grasp the rounded hair with their claws. They cannot easily grip the oval hair shaft. For this reason, black children are rarely infested in the U.S., although every other group is at high risk. Conversely, African lice are evolved to grip the oval hair, so those with rounded hair shafts are largely protected from infestation with the native lice found in Africa, and African natives are at high risk in their home country.

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10 Steps To Staying Ahead of Lice

1. Watch for signs of head lice, such as frequent head scratching. Anyone can get head lice... mainly by head-to-head contact but also from sharing hats, brushes and headrests. Lice do not jump or fly.
2. Check all family members for lice and nits (lice eggs) at least once a week. Only those infested should be treated. Lice are reddish-brown wingless insects, nits are grayish-white, always oval shaped, and are glued at an angle to the side of the hair shaft.
3. Be sure not to confuse nits with hair debris such as bright irregularly shaped clumps of dandruff stuck to the hair shaft or elongated segments of dandruff encircling the hair shaft and easily dislodged. Lice treatment is not appropriate for hair debris.
4. Consult your pharmacist or physician before applying or using lice treatment pesticides when the person involved is pregnant, nursing, has allergies, asthma, epilepsy, has pre-existing medical conditions, or has lice or nits in the eyebrows or eyelashes. Never use a pesticide on or near the eyes.
5. Remember, all lice-killing products are pesticides. If you choose to purchase an over-the-counter treatment, follow the directions carefully and use with caution. If the product fails, do not switch to other over-the-counter treatments or use any prescription products as a "last resort". This can be potentially harmful. Manual Removal is the safe alternative and a necessary component to any head lice treatment regimen.
6. Follow package directions carefully. Use the product over the sink, not in the tub or shower. Always keep the eyes covered.
7. **Remove all nits.** This assures total lice treatment. Separate hair in sections and remove all attached nits with a nit removal comb, baby safety scissors, or your fingernails.
8. Wash bedding and recently worn clothing in hot water and dry in a hot dryer. Combs and brushes may be soaked in hot water (not boiling) for 10 minutes.
9. **Avoid lice sprays!** Vacuuming is the safest and best way to remove lice or fallen hairs with attached nits from upholstered furniture, rugs, stuffed animals and car seats.
10. Notify your child's school, camp, child care provider to report a lice outbreak. Check for lice on a regular basis. This is the best way to protect your family and community.