

**What are lice?**

Lice are wingless insects dating back to antiquity. They are host-adapted to humans and do not live on household pets or in the general environment. Nits remain viable on clothing about 1 month. Body and head lice can survive a week off the host without food, crab lice only two days. Nymphs survive 24 hours without food.

**How are they acquired?**

Lice do not fly or jump. Transmission is almost always through direct contact. Fomites and the environment are extremely infrequent sources. As a rule of thumb, over 95% are transmitted through person-to-person contact and less than 5% through indirect exposure.

**How are they transmitted?**

Lice are transmitted in community settings where close contact from play and living activities occur. For example, child care centers and nursing homes are settings conducive to transmission. While lice infestations are recognized in elementary schools, it is safe to assume that only a minority of lice infestations in school-age youngsters was actually acquired while at school. No exclusion from school or child care is necessary.

**What are the risk factors for transmission?**

Small children at play are the primary setting for transmission. Increasing risk would also be associated with home child-care; crowding, such as two families living in one dwelling or in a child-care center and any activity that brings youngsters together in informal settings such as sleep-overs, scouts, youth sports activities, etc. While schools are of lesser importance, best friends or playmates present risk from close associations at recess and during transportation such as in school buses.

**What is the best approach to screening?**

Screening requires a close visual examination of the individual's head for crawling lice and nits (eggs). A small hand lens may help but is not essential. Very good lighting is desirable. Examine the hair and scalp for at least 15 minutes to be reasonably sure the child does not have head lice. Most individuals have fewer than 10 adult lice. The characteristic itching caused by lice may not develop for 30 days or longer after infestation. A flashlight or ultraviolet light may help in detecting lice or eggs. Ideally parents should screen their own youngsters periodically, perhaps weekly, while they are in child-care or in the early grades at school. If lice are of high incidence in the community, parents should also screen all household members, children visiting the home, and frequent playmates.

**What causes treatment failure?**

Many strains of lice have developed resistance to the permethrin and lindane insecticides. Also, all products have minimal ovicidal (nit killing) activity so nits remain viable, resulting in nymphal lice emerging after treatment, thus a second treatment 7-10 days later is recommended.

**What is the best approach to treatment?**

The natural pyrethrins contained in over-the-counter products such as Rid, A-200 Pyrinate, Pronto, and various store brands are perhaps the best class of insecticide because they are effective on lice and are minimally toxic to humans. Lindane is not recommended because of its toxic potential and demonstrated lice resistance. An important component of treatment is a daily shampoo for two weeks, (after the first use of medicated shampoo) with ordinary shampoo and cream rinse conditioner along with wet combing of the hair with a fine-tooth comb. This renders the hair slippery, impedes mobility of the lice, and water logs the individual louse to the point that it can be easily combed out. Lice and eggs should be removed from the comb between strokes on a paper towel or tissue paper. Medicated shampoo, such as those listed above, should be used on days 1 and 7. Over the two-week period, lice should become smaller and fewer in number, and then ultimately disappear.

**How do you manage "worst case" situations?**

It is challenging when several children in a household have a history of long-term infestation which may include involvement of the parent(s) or other adults. Compliance with treatment may be poor or nonexistent. Intensive support from social worker services and local health departments may be necessary. If the previously described therapy continues to fail, the healthcare professional may wish to consider "extra-label" use of oral ivermectin (Stromectol - Merck). Reference: "Drugs for Head Lice," *The Medical Letter On Drugs and Therapeutics* 38: 6-7, January 17, 1997.

#### **How effective are home remedies?**

Never use kerosene, gasoline, or other dangerous substances. Use of mayonnaise, vinegar, various types of vegetable oils, Crisco, Vaseline, etc., may be of some benefit, but must be balanced against difficulty in removing some products from the hair. (Note: Emphasize the regime of using the 2-week shampoo, plus cream rinse conditioner, and fine tooth wet combing technique, with use of medicated shampoos on days 1 and 7.)

#### **How important is removal of nits?**

Nits are problematic and represent the next generation of lice after treatment. Efforts to comb out nits with plastic or metal combs are desirable but may test the patience of both parent and child. Some schools have adopted "no-nit policies" that improve the success rate of individual treatment but provide no assurance of eradicating the problem. The most important nits are proximal to the scalp. Any nit more than 3/8 inch from the scalp is either hatched or no longer viable.

#### **How important is the environment in lice transmission?**

It has been overrated in the past to the point of mythical proportions. Laundering of linens and vacuuming of upholstered furniture is more than adequate. Any environmental measures should not be employed at the expense of efforts to do the two-week technique as outlined above. Environmental spraying is worthless and should not be done. The pyrethrin sprays are not without risk and can aggravate the health problems of children with asthma.

#### **What can one do to prevent lice?**

The best defense is frequent screening of youngsters at risk followed by diligent treatment, if necessary. Assume there are lice in the community at all times of the year.

**What are lice?**

Lice are small insects that live in the hairy parts of the body. The eggs (nits), larvae, or adult lice are visible if present on the head or body. The crawling stages of this insect feed on human blood by biting which can result in severe itching. Head lice are found on the scalp, crab lice in the pubic (genital) area, and body lice in clothing along inside seams that touch the body.

**What are the symptoms of an infestation of lice?**

Usually, the first sign is itching or scratching in the area of the body where the lice feed. Itching at the back of the head or ears may result from the presence of head lice and nits in the hair. Itching around the genital area should lead to an examination for crab lice or their eggs. Scratching can be severe enough to result in bacterial infections in these areas.

**How soon do symptoms appear?**

It may take 2 - 3 weeks or longer for a person to notice the extreme itching associated with lice.

**How are lice spread?**

Spread of both head lice and body lice can happen during close contact with a person who has lice. Less frequently, sharing of clothing and combs or brushes may result in the spread of these insects. Crab lice spread through sexual contact.

**Who gets lice infection?**

Anyone may get lice under the right conditions. Lice spread easily from person to person after close contact. Head lice are often found on people in schools or nursing homes. Crab lice are usually found on sexually active people. Body lice are found in people living in crowded, dirty conditions where clothing is not often changed or washed.

**How long is a person able to spread lice?**

Lice can spread as long as the insects or their eggs remain alive on the infested person or on clothing.

**What is the treatment for this illness?**

Medicated shampoos or cream rinses are used to kill lice. They are available from a doctor or over-the-counter. Some shampoos are not recommended for infants, young children, and women who are pregnant or breastfeeding. Always follow the directions on the label of the shampoo. Special combs are available to help remove nits from hair. However, medicated lice shampoos do not kill all the eggs (which are also difficult to comb completely out of the hair). This can cause a reappearance of head lice. For this reason a second treatment 7 to 10 days after the first treatment helps to kill lice that hatched since the first treatment. The above treatment should include daily shampoos for two weeks with ordinary shampoo, followed by a cream conditioner rinse, then combing the wet hair for 15 minutes with a very fine-toothed comb. (Clean the comb between strokes on paper towels or tissue.) This will remove emerging lice from eggs or nits and give you the best chance for cure. Do not use kerosene, gasoline, or pet shampoos for treatment. Cleaning of homes and laundering of clothing and bedding is appropriate but most effort should be put into the daily shampoos with conditioner rinse and fine tooth wet combing of the hair to comb out the nits.

**Do infected people need to be excluded from school, work, or child care?**

No.

**What can be done to help prevent the spread of lice?**

Be aware of lice and check your youngsters and those who visit your household or play a lot with your children. Do not share clothing, hats, combs or brushes, or bedding. Parents should check children regularly for head lice. Use proper shampoos for treatment of lice. Use nit combs to remove eggs after shampooing.

