Transmission of Head Lice

Head lice are transmitted by:

- Person-to-person transmission (direct contact) – The majority of transmissions of head lice occur by direct head-to-head contact with an infested person. Most of the time this is a close friend or relative.

- Vector transmission (indirect contact) – This type of transmission may occur through the sharing of bedding, or by using personal items such as combs, brushes, scarves, hair ornaments, or hats of an infested person. Although transmission via indirect contact is possible, it is rare.

Common ways of transmission through head-to-head contact include:

- Slumber parties
- Shared beds

Without head-to-head contact, these ways of transmission are highly unlikely:

- School buses
- Hats, helmets, or headphones
- Sport activities
- Reading circles
- Gym mats
- Sitting at a desk

Anyone can get head lice, but some people are at greater risk than others. Those people include:

- Children between the ages of 3 and 11 years
- Girls are more likely to get head lice than boys, possibly because of their play styles and sharing of personal items. 
- People with long or short hair can contract head lice. Although all races can get head lice, studies show that children of African-American descent are less likely to become infested.

Quick Facts

1. Head lice are adept at moving from hair-to-hair because of their specialized “claws.” They cannot jump, fly, or crawl great distances over hard surfaces.
2. Head lice cannot survive long away from a human head. A nymph or adult louse that falls from its host will perish within a couple days under the most optimal conditions. Louse eggs do not hatch at normal room temperatures; they require the higher temperatures associated with a human body.

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5 Centers for Disease Control and Prevention, Head Lice Epidemiology: http://www.cdc.gov/parasites/lice/head/epi.html.
Management and Treatment

Head lice infestations have been occurring for thousands of years, and although numerous efforts have been tried to prevent them from occurring, nothing has proven to be 100 percent successful. However, when they do occur, head lice infestations can be managed. It is important not to panic and/or to cause undue stress for those infested and others around them.

If head lice are suspected, it is recommended the individual be inspected by a school nurse, a public health nurse, or a medical provider. It is recognized that not all families, schools, or child-care facilities have access to a school nurse, a public health nurse, or medical provider. In those situations, it is recommended that schools and child-care facilities designate an individual or individuals who will be trained to inspect and assess for head lice on a private and confidential basis.

Management activities include treating close contacts with head lice, and the elimination of lice and nits from the living environment and personal items.

**Treatment should be considered only if lice or viable eggs are observed.** Once a head lice infestation is determined, there are several treatment options to choose from. Methods include:

1. Treatment with pediculicides (substances used to treat lice)
2. Manual removal
3. Alternative or natural methods

**Treatment with Pediculicides**

Pediculicides are substances or agents used to kill head lice. There are many medicated products available for treatment of head lice, and they normally come in the form of shampoos. Most are available over the counter, but some are by prescription only and may be reimbursable through insurance. **All products must be used strictly in accordance with label directions to ensure effectiveness and prevent adverse reactions from overuse or misuse.** When used properly, their effectiveness has been reported to be 80-95 percent. Repeat treatment with the pediculicide in 7 to 10 days may be needed if indicated on the product label. (See Treatment Failure section, page 11)

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**Manual Removal of Lice and Nits**

Manually removing lice and nits may be effective at quickly resolving a head lice infestation. Pediculicide treatment may not be 100 percent ovicidal. For this reason, removing viable eggs may prevent the need for a second treatment. Whether using a pediculicide or manual removal as a stand-alone treatment, the more lice and nits that are combed from the hair, the faster the infestation will be resolved.

To manually remove lice after pediculicide treatment or as a stand-alone treatment:

1. Work in an area with good visibility and light, such as from a lamp or natural sunlight through a window.
2. Make sure a standard comb moves through the hair without difficulty before attempting to use a fine-toothed lice comb. Combing may be easier if the person's hair is slightly wet.
3. Part the hair into sections and hold sections in place with rubber bands or hair clips.
4. Sit behind the person and use a bright light (and magnification if available) to inspect and comb through the hair, one small section at a time. Remove nits using the comb, fingernails, or by cutting the strands of hair.
5. Clean the louse comb frequently to remove any caught lice or eggs using soapy water or paper towel. It may require several hours each night for several nights to successfully remove all nits and lice. An entertaining video may help keep children occupied during this exercise.
6. Combing may be repeated daily until no lice are seen. Continue monitoring for two to three weeks.

Many types of fine-toothed combs may be included within packages of pediculicides, or they may be purchased from most drug stores or internet retailers. The effectiveness depends on their composition (metal or plastic) and construction (length and spacing) of the comb teeth, the texture of the hair to be combed, combing technique, and the time and care expended in the effort. Electronic combs may be useful for detection (if vision is limited), since they emit a sound when a live louse is present.
Alternative or Natural Methods

Several products are marketed as alternative or natural methods of treatment. A number of shampoos and rinses contain herbs, oils, or enzymes believed to aid in lice removal. The majority of alternative or natural products are suffocants or enzymes.

Natural or herbal products are not required to meet FDA efficacy and safety standards. These products do not have licenses for the treatment of head lice, and in some cases, have little or no data to support their effectiveness. Although natural products are often perceived as being intrinsically safe, the State of Michigan cannot recommend these treatments without further evidence of their effectiveness. Please contact your local health department or family physician to make sure there are no potential health consequences of alternative or natural methods.

Suffocants – petroleum jelly, mayonnaise, plant-based oils, or Cetaphil

- Suffocants can obstruct the respiration of adult lice as well as suffocate lice eggs by blocking efficient air exchange.
- For all products except Cetaphil, the product is massaged on the entire surface of the hair and scalp, covered with a shower cap, and left on for at least eight hours (see safety precautions page 19). The suffocant can then be used as a lubricant to aid in nit removal by combing.
- Cetaphil is massaged on the entire surface of the hair and scalp, the excess product is combed out, hair is dried with a hair dryer, and the hair is washed eight hours or more later.\(^8\)
- Diligent shampooing is usually necessary for at least the next 7 to 10 days to remove the residue.
- To date, little scientifically published information is available on the effectiveness of these methods.

Enzymes – LiceLogic, Lice B Gone, Lice R Gone

- Treatment products containing “enzymes” claim to dissolve or soften the glue that attaches the nit to the hair shaft, thereby providing easier removal of lice and nits when combing. To date, only anecdotal information is available on their effectiveness.

Desiccation (Heat Treatment) – LouseBuster, hair dryers, etc.

- The LouseBuster is a custom-built machine that uses one 30-minute application of hot air in an attempt to desiccate active lice and their eggs.
- One study has shown that subjects had nearly 100 percent mortality of eggs and 80 percent mortality of hatched lice.
- The LouseBuster is expensive and requires training in its use. Some businesses offer convenient heat treatments for a fee (normally not covered by insurance).
- A home hair dryer should not be used in the same way. Studies have also shown that using home hair dryers, commercial (salon) dryers, and drying bonnets are not as effective as the steady and diffused heat offered by professional products.

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Cleaning of Personal Items and Environment

Head lice are spread most commonly by direct head-to-head (hair-to-hair) contact. However, much less frequently they are spread by sharing clothing or belongings. The risk of getting infested by a louse that has fallen onto a carpet or furniture is very small. Head lice survive less than 1-2 days if they fall off a person and cannot feed; nits cannot hatch and usually die within a week if they are not kept near body temperature. Items that have been in contact with the head of the person with infestation in the 24-48 hours before treatment should be considered for cleaning.

Check everyone in the household at the same time

Check everyone in the household at the same time, prior to cleaning the environment. This includes grandparents, younger and older siblings, and parents. Statistics have suggested that 60 percent of people with head lice don’t know they have them and have no symptoms. They may be unintentionally infecting others and continuing the cycle.

Launder any personal items that could be infested with head lice

Personal items to be laundered include clothing, bedding, towels, cloth toys, etc. Items should be washed for at least 10 minutes in hot water and/or dried on high heat for at least 30 minutes. For items that cannot be washed, seal in a plastic bag and store for 14 days at room temperature or 24 hours in below freezing temperatures.

Vacuum

Items that should be vacuumed include bare mattresses, carpets, floors, stuffed animals, coat collars, hats, couches, chairs, and car upholstery. There is no need to discard the vacuum bag after cleaning, except for aesthetic purposes. Head lice cannot survive without a blood meal.

Inspect hairbrushes, combs, hair ties, and barrettes

For washable accessories, wash and dry (on high heat) for at least 30 minutes. Soak combs, brushes and barrettes in water hotter than 130°F. If items cannot be exposed to high heat, soak them in Lysol® or rubbing alcohol for one hour.

DO NOT spray or “fog” a home with insecticides or pediculicides. They are not necessary to control head lice and may be harmful if used in a poorly ventilated area. The CDC, the AAP, and the Michigan Department of Community Health strongly discourage the use of these spray products for the control of head lice.

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Quick Guide for Managing Head Lice

Management and treatment of head lice includes:
1. Careful inspection and screening of the hair and scalp to identify lice and/or nits correctly.
2. Use of a pediculicidal (head lice) product if live lice or viable nits are found.
3. Cleaning of personal items and the environment.
4. Repeat treatment with the pediculicidal product following the label instructions. If the label does not provide a guide for a second treatment, repeat treatment nine days following the initial treatment.

2. Use of a pediculicidal (head lice) product if live lice or viable nits are found.
When someone is infested with head lice, he or she should be treated with a medicated hair product that will kill the lice (a pediculicide). Pediculicides are not meant to be used for prevention.

There are many lice treatment products available, which can be found at area drug stores or grocery stores. Most non-prescription pediculicidal products contain permethrin 1% or pyrethrin (such as Nix or RID1). Permethrin 1% is recommended as the first choice of treatment. Once you have selected a product, it is very important that you follow the label directions on the product EXACTLY to treat those who are infested.

Treat only those people with live lice or nits less than one quarter inch from the scalp. The American Academy of Pediatrics recommends treating anyone who shares the same bed with those who are infested.

Prescription pediculicides are also available. For further information on pediculicidal products, contact your local public health department, healthcare provider, clinic, or pharmacy.

1. Careful inspection of the hair and scalp to identify lice and/or nits correctly.
Lice are tiny insects (about the size of sesame seeds) ranging in color from red to brown, yellow, tan, gray, white, or black. They attach their eggs (nits) to the hair shaft near the scalp with a glue-like substance. The nits are small, about the size of a knot of thread, and can be white, tan, pale gray, or yellow in color. Nits can be hard to see, so it is important to take your time and separate the hair into thin sections. The nits are most commonly found at the nape of the neck and behind the ears, but can be anywhere, so check the entire head.

A person is infested with head lice if live lice or nits on the hair shaft closer than one quarter inch from the scalp are found.

All individuals living with an infested person, as well as those who have head-to-head contact with the person, should be screened for lice.

Before using the product, review all safety statements on the label. Do not use the product if any of the precautions apply to you or the person being treated. Consult with a healthcare provider for further instructions. Using a head lice treatment product will not prevent you from getting head lice.

11 Use of a brand name does not endorse the specific product. A similar product may work as well as those mentioned.
Quick Guide for Managing Head Lice (continued)

3. Cleaning of personal items and the environment.
No special cleansers, sprays, or chemicals are needed for cleaning your home.

Soak hair care tools in hot water (130°F) for at least 10 minutes. Heat may damage some plastic combs and brushes. Place these items in a sealed bag for two weeks.

To kill lice and nits, machine-wash all washable clothing and bed linens that have been used by the infested person(s) during the two days before treatment. Use the hot water cycle during the washing process. Dry laundry using high heat for 30 minutes.

Washing clothes to remove lice and nits is only necessary on the day of treatment and does not need to be repeated daily.

Another option is to place the item in a hot dryer for 30 minutes, if the recommended care label approves use of dryers.

Articles that cannot be machine washed, or placed in a hot dryer can be vacuumed, dry cleaned, or stored in a sealed plastic bag for two weeks.

Floors, carpets, upholstered furniture, pillows, and mattresses should be vacuumed to pick up any hairs that may have living lice or nits attached to them.

4. Repeat treatment with the pediculicidal product following the label instructions. If the label does not provide a guide for a second treatment, repeat treatment nine days following the initial treatment if live lice or nits within one quarter inch of the scalp are found.

The use of lice sprays for the house can be dangerous and is not recommended.
What Families Can Do About Lice

Focus on solutions, not on blame.
Remember: head lice can be picked up at sleepovers, camp, home, and other places where children share close quarters and come into close contact with someone who already has lice. Be sure to check your child’s hair regularly, and especially before and after he/she attends a sleepover or other similar activity.

Stay calm. Anxiety and guilt can be common reactions to the news that your child has head lice. Be assured that personal hygiene or cleanliness has nothing to do with a child getting lice. The fact is, while lice may be upsetting and a nuisance, they do not spread disease.

Do not self-treat without consulting an expert. If you think you spot nits but do not see any moving, living lice, consult your child's school nurse or your pediatrician. Do not treat your child with medicated products without confirming that he/she does have head lice.

Head lice and their eggs (nits) can be seen on hair, the nape of the neck, and behind the ears. They can vary in color from white to brown to dark gray. The eggs are tiny round or oval shapes that are tightly attached to the hair near the scalp and do not slide up or down on the hair. The adult louse is about the size of a sesame seed.

Image: Healthwise, Inc.