

Head Lice



A Lousy Problem



NORTH DAKOTA
DEPARTMENT *of* HEALTH

Head Lice

A Lousy Problem

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Preface

Head lice (*Pediculus humanus capitis*) have been living on the scalps of humans for thousands of years. From the time of ancient Greece and Egypt, through the middle-ages and up to the present, the problem of head lice infestations has continued. Head lice are present in our communities most of the time.

There are no known health risks from head lice, yet head lice may cause distractions, poor self-esteem and hesitancy to participate fully in school and/or recreational activities. Children and their families may feel embarrassed, angry, frustrated, guilty or ashamed that they are infested with head lice.

Head lice can infest all people, regardless of age, race, socioeconomic status or hygiene practices. It is probable that head lice will never be eliminated completely; however, knowing the facts about head lice transmission, treatment and management will help to ensure the best control of infestations.

This manual was developed to provide information about head lice, prevention actions, treatment options and guidelines appropriate for use in the home, child-care settings, schools and communities. There have been many changes in the recommended approaches regarding screening for and the management of head lice, including research finding that no-nit policies are ineffective in stopping transmission of head lice. Utilizing the 2010 recommendations of the American Academy of Pediatrics (AAP) as the primary reference and resource, this manual is designed to provide clarification of those recommendations for effective treatment and management of head lice.

At the end of this manual is a page discussing myths and facts, a fact sheet entitled “Head Lice (*Pediculosis capitis*)” and a Quick Guide. These pages may be reproduced and given to parents or others trying to get rid of head lice.

Definitions (as used in this manual)

AAP – American Academy of Pediatrics

CDC – U.S. Centers for Disease Control and Prevention

Host [hohst]– an animal or person from which a parasite obtains nutrition

Infestations [in-fe-stey-shuhn] – being infested

Infested [in-fest-ed] – having insects in one’s hair

Lice [lahys]– more than one louse

Louse [lahys] – (singular) *Pediculus humanus capitis* (head lice), a small insect that lives on the scalp

Nit [nit] – eggs of a louse; may be alive or dead

Neurotoxic [noor-oh-tok-sik, nyoor-] – poisonous to nerve tissue, as to the brain or spinal cord

Parasite [par-uh-sahyt] – an organism that survives on the body of a host (in this case, lice live off humans)

Pediculicide [puh-dik-yuh-luh-sahyd] – a lice-killing product

Pediculosis [puh-dik-yuh-loh-sis] – having an infestation of head lice

Transmission [trans-mish-uhn, tranz-] – the act of transporting

Vector [vek-ter] – any organism or item that carries head lice

Viable [vahy-uh-buhl] – being able to hatch or survive

What Are Head Lice?

Head lice (*Pediculus humanus capitis*) are small parasitic insects that live on the scalps and necks of people. Parasitic refers to an organism that survives on the body of a host. In the case of head lice, the host is a person. Head lice live on people and not on animals. It is specific to people.

The adult louse is flat, wingless and crawls. It does not have the ability to fly, hop or jump. Lice tend to adapt to their surroundings (hair and skin color), and range in color from red, brown or black to gray-white and are often hard to see. A louse is very small (about the size of a sesame seed), has six legs, a diamond-shaped head and an elongated body. The mouth is shaped like a stylet (a slender probe or tube). This allows the louse to pierce a person's scalp so it can feed (a blood meal).

Head Louse



Highly magnified louse



Lice at various stages of development, from egg to adult (magnified)



Actual size

Life Cycle of Head Lice

The life cycle of the louse consists of three stages:

Stage 1 – Eggs:

The head louse begins life as an egg, commonly referred to as a nit. Nits are laid by the adult female. The nits are firmly attached to the base of the hair shaft, next to the scalp, by a glue-like substance produced by the louse. Nits range in color from white, yellow, tan to grayish, depending upon the stage of development and whether or not they have hatched or been killed by treatment. Nits are oval or teardrop shaped, smooth and very small (about the size of a knot of thread). Nits are hard to see and often are confused for dandruff, hair spray droplets or other debris.

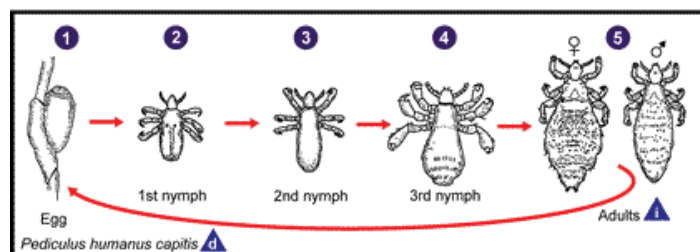
Stage 2 – Nymphs:

The nits are incubated by body heat for about seven to 12 days before they hatch to release a nymph. The nit shell remains on the hair shaft after hatching and becomes a dull yellow or translucent white and may have a wrinkled look. The nymph looks like an adult louse, but is only about the size of a pinhead. Nymphs need a blood meal within hours of hatching to survive. During the next seven to 10 days, the nymph continues to grow and mature, going through three molts, until it becomes a full adult louse.

Stage 3 – Adults:

The adult louse is about the size of a sesame seed. The life span of an adult louse is about three to four weeks. The female usually is larger than the male and can lay up to 10 nits per day (only nits that are fertilized will develop and hatch). The live adult louse needs to feed on blood every three to six hours. Without blood meals, or once away from the human host, the adult louse can usually survive for no longer than 24 to 36 hours.

Life Cycle of the Head Louse



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 already infested person. Contact is common during play (slumber parties, bed sharing, sport activities or games).
- Vector transmission (indirect contact) – This may occur through using personal items of an infested person such as combs, brushes, bedding, scarves, hair ornaments, hats and helmets. Although transmission via indirect contact rarely occurs and is unlikely, it is possible.

All people can get head lice; however, some individuals are at greater risk than others. Those individuals include:

- Children between the ages of 3 and 11 years are most often infested.
- Girls are more likely to get head lice than boys, possibly because of their play styles and sharing personal items (U.S. Centers for Disease Control and Prevention [CDC]).

Hair length does not seem to matter in regards to likelihood of getting lice. Although all races can get head lice, studies in the United States show children of African American descent are less likely to become infested.



Detecting Head Lice

The gold standard for diagnosing head lice is finding a live louse on the head. Nits that are viable are usually found at the nape of the neck or behind the ears, within ¼-inch of the scalp (CDC).

Signs and symptoms:

For many people, head lice cause no symptoms. When symptoms are present, they include:

- **Itching** – Itching of the head is the most common symptom. Itching is caused by the saliva-producing toxin that the louse injects into the scalp when it feeds. The amount of itching may be from slight to severe. The degree of itching that occurs is often dependent upon the extent of infestation. Itching may be very mild if the infestation has just occurred, or it may be severe if the infestation has gone untreated for a long time.
- **Sores on the head** – Occasionally, very tiny red areas on the scalp may be seen due to the bites from the louse. Sores on the head may develop from continued itching and scratching. Sometimes these sores can become infected. On rare occasions, a person may develop swollen glands in the neck or under the arms. You should contact your health-care provider if you think a sore has become infected, or if you have any swelling in the neck or under the arms. Most lice infestations do not lead to infections.
- **Tickling feeling of something moving in the hair** – Another symptom reported by some people is a tickling or crawling feeling in the hair.
- **Sleeplessness** – Difficulty sleeping is also a common sign of lice infestation as the lice are more active at night and may disrupt sleep.



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 screened 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.

The process of inspection and/or screening is covered in depth in the following pages.

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. The cleaning of personal items and the environment.
4. A repeat treatment with the pediculicidal product nine days following the initial treatment, if not otherwise indicated on the product label.

Removal of nits may be recommended in conjunction with some over-the-counter products, although research has shown removal of nits may not be necessary. This process is tedious and time consuming; however, it may reduce diagnostic confusion during future head checks. Some families may desire to remove the nits for aesthetic reasons. The second treatment, completed nine days after the initial treatment, should kill any newly hatched lice prior to them maturing and gaining their ability to lay nits.

The information on page 21 discusses recommendations for schools, child-care facilities and group settings.

Remember, head lice can infest all people, regardless of age, race, socioeconomic status or hygiene practices. Regular bathing, shampooing or swimming will not prevent or get rid of head lice.

1) Careful inspection and screening of the hair and scalp to identify lice and/or nits correctly

Head lice may be brought into the home after a person has had head-to-head contact with an infested person at child care, school, camp, sleepovers, etc. The most rapid spread of head lice occurs through the home because of the close proximity of family members. Whenever one person in the family has been identified to have lice, everyone living in the home should be inspected. Any friends, family member or other people who have had close head-to-head contact with the infested person over the previous week should be notified so they can be inspected for head lice as well.

Careful inspection of the hair and scalp is the best way to see if a person has head lice.

Basic supplies needed for a lice inspection include:

- **Time** – The examiner needs to conduct a careful search of the hair and scalp. This will take about three to five minutes per person.
- **A good light source** – Nits reflect ultraviolet light, so sources that contain ultraviolet rays, such as natural light (near a window or outside) are the best. There is a special lamp called a Wood's Lamp that works very well since the nits become fluorescent and are easier to see. If none of these light sources are available, a lamp with at least a 60-watt bulb can be used.
- **Magnifying glass (optional)** – A magnifying glass can be helpful when looking for nits and lice. It may be especially helpful if the examiner has difficulty focusing at close distances, wears bifocals or has any other visual problems.
- **Disposable hair parting tools (optional)** – Some examiners like to use hair dividing tools such as coffee stirrers, blunted toothpicks or the stick portion of a cotton swab. The stick is used to divide and lift the hair so the base of the hair shafts can be inspected for nits and/or lice. If more than one individual is being inspected, new sticks should be used for each person being examined.
- **Vinyl gloves (optional)** – Some examiners like to wear vinyl gloves; however, the use of gloves is not necessary. There is no evidence showing lice are spread through hand contact and do not pose risk for disease transmission. Gloves should be changed in between each inspection (if used).

Performing the inspection for lice

The entire head should be examined, but special attention should be given to the places where lice are most likely to lay their eggs. These areas include the hair directly over and behind the ears, near the crown and at the back of the neck. The hair should be separated or parted into small sections so the base of each strand of hair can be inspected. The lice themselves may be hard to see since they move fast; more often the nits can be found. Viable nits are close to the scalp (less than $\frac{1}{4}$ inch).

It is important to be able to tell nits from other debris in the hair. Debris in the hair such as hair spray particles, lint, scales or dandruff will brush off or can be blown away easily. The female louse produces a glue-like substance that firmly attaches the nit to the hair shaft. Nits cannot be brushed away, washed off or blown from the hair. In order to avoid mistaking debris for nits, attempt to pull the particle from the hair shaft. If the particle remains attached, then suspect nits.

Improper identification of nits is a common problem, especially for new and/or inexperienced examiners. For inexperienced examiners, confirmation of infestation with a school nurse, public health nurse or a health-care provider is recommended.

If no nymphs or live lice are seen and the only nits found are more than $\frac{1}{4}$ inch from the scalp, the infestation is probably old and no longer active and does not need to be treated (CDC).



The gold standard for diagnosing head lice is finding a live louse on the head!

2) Use of a pediculicide product if live lice or viable nits are found

Pediculicidal products – There are many pediculicidal products available for the treatment of head lice. Most nonprescription pediculicidal products contain Permethrin 1% or Pyrethrin (such as Nix or RID*). Permethrin 1% is the most studied pediculicide in the United States (AAP, 2010) and is recommended as the first choice of treatment when no resistance to the product has been identified in the area. Prescription pediculicidal products contain stronger doses of Permethrin, Malathion, Benzyl alcohol (not rubbing alcohol) or Lindane. For further information on pediculicidal products, contact your local public health department, health-care provider, clinic or pharmacy.

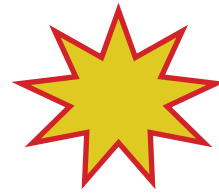
Important things to know about pediculicides:

- **Never treat unless there is definite evidence of head lice.**
- Pediculicides are to be used for the treatment of head lice only when there are live lice or viable nits present in the hair, or when individuals share the same bed with someone who has live lice or viable nits (AAP, 2010). They should not be used as routine shampoo or conditioners.
- These products do not prevent someone from getting head lice.
- Nonprescription pediculicidal products generally are effective and safe if used according to the manufacturers' directions. To ensure proper treatment, follow all recommendations and directions on the label. All safety precautions listed on the product label should be observed.
- No product is 100 percent effective at getting rid of lice and their eggs. A second treatment nine days after the initial treatment, or as recommended on the product label, is encouraged.
- **Pediculicidal products are for external use only. These products are harmful if swallowed or inhaled. If accidental ingestion does occur, contact poison control at 1.800.222.1222.**
- The scalp may continue to itch for several days after treatment. Tender scalp, stinging of the scalp or scalp irritation may be associated with treatment. These symptoms are not evidence of continued infestation. Generally, these symptoms occur within hours after treatment and may last up to 24 hours.
- Permethrin conditioners continue to work after the hair is rinsed during the initial treatment. Do not use other hair conditioners directly prior to, or after using the product, as these may interfere with the effectiveness of the pediculicide. Also avoid shampoos with conditioners and rewashing the hair for several days following the treatment.
- Use the entire contents of a container for each individual. Unless the container indicates multiple doses, a bottle of pediculicide should not be split and used by multiple individuals, nor should a dose be divided to use for more than one treatment. A second container of product may be needed to fully saturate the hair for someone with long hair.

* = Use of brand names does not endorse the specific product. Any similar product may work as well as those mentioned.



SAFETY AND PRECAUTIONS



Do not use a pediculicide if:

- The person has a known sensitivity to any component in the product.
- The child is younger than the age recommended on the product label. This ranges from ages 2 months to 2 years. For infants younger than 2 months, head lice and nits should be removed manually by picking the lice and nits from the hair. A special comb may be needed for this (see pages 19 and 20 for instructions on removal of nits and lice).
- The person has an infestation of the eyebrows or eyelashes.
 - ▷ When these areas are infested, the person should be inspected for body lice and/or pubic lice.

In these instances, a health-care provider should be consulted to identify safe treatment options.

The following groups of people should consult their health-care providers before treating themselves or another person with a pediculicide:

- Individuals who have neurological conditions, such as seizure disorders, cerebral palsy, etc.
- Pregnant women and nursing mothers
- Individuals who have cancer
- **Individuals who have asthma and/or allergies**
 - ▷ **Pediculicidal products may cause breathing difficulty or asthmatic episodes in some individuals.**
 - ▷ **Individuals who have an allergy and/or sensitivity to ragweed, chrysanthemum or roses may have an allergic reaction to some of the pediculicides.**



SAFETY PRECAUTIONS

Products containing Lindane (such as the prescription product Kwell) should be used with extreme caution! Neuro-toxic reactions have been reported as a result of the normal use of Lindane shampoos.

Measures for safe use of a pediculicidal product

- Keep pediculicidal products out of reach of children.
- Treatment of all children should be done or supervised by an adult. Do not leave children unattended while a pediculicidal product is on the hair.
- Timing is important. It may be helpful to use a timer. If the product is rinsed off too soon, lice and nits may not be killed. If left on too long, it causes unneeded exposure to the lice-killing chemicals. Remember to follow all manufacturers' recommendations and label directions.
- Many pediculicidal products contain ingredients that may cause eye irritation. Care should be taken to avoid contact with the eyes. If accidental contact with the eyes occurs, quickly wash/flush the eyes thoroughly with tap water. Consult your health-care provider if eye irritation results.
- Avoid contact with mucous membranes, such as the lining of the nose or mouth.
- If you need to treat more than one individual, and/or to avoid unnecessary exposure to the product, it is recommended to wear vinyl gloves when applying or rinsing the product.
- Avoid contamination of food and preparation areas with these products.
- Upon completion of treatment, do not reuse the container. Rinse the container thoroughly and discard in the trash.

Procedure for treatment of an individual

- When head lice have been identified on one family member, ideally all household members should be inspected before treatment is started. All household members found with infestation should be treated the same day. Treat only those who are infested or individuals who share the same bed with an infested individual (AAP, 2010).
- Most pediculicides come packaged in single-dose containers. Do NOT divide the product and/or use a single container for multiple heads unless it is marked as a multiple-dose container. Read the package insert carefully. Use the entire contents during a single treatment, making sure the hair is entirely saturated. If more treatments are necessary, obtain more products.
- Remove the individual's shirt. Cover the shoulders and arms with a towel. To protect the eyes, cover them with a washcloth.
- To confine the product to the head and scalp, have the individual lean over the sink or bathtub. Do not treat while bathing or showering, as the product may flow onto the body and expose greater amounts of skin.
- Follow the manufacturer's directions and apply the treatment.

-
- Unless instructed otherwise on the product instructions, allow the hair and scalp to dry in open air. Hot hair dryers or blowers may reduce the effectiveness of some lice treatment products.
 - Following the treatment, have the person put on clean clothing.
 - Hair conditioners and vinegar rinses may reduce the effectiveness of some lice treatment products. Remember to follow the manufacturer's instructions. If shampooing is needed during the week following treatment, use regular shampoo only.
 - No treatment is 100 percent effective. A second treatment should be provided nine days after the initial treatment if not otherwise specified on the product label.
 - Removal of nits immediately after treatment with a pediculicide is usually not necessary to prevent the spread of lice, but may be encouraged for cosmetic reasons, to decrease diagnostic confusion during future head checks, or it may be required by some schools or child-care providers. Discussion of the nit removal process starts on page 19.
 - Cleaning of personal items and the environment should be done on the same day of treatment. (See pages 16 and 17.)

If lice persists or if treatment does not seem to be working, consider the following:

- Was the hair too wet during application of treatment?
- Were product directions followed exactly as stated on the label?
- Was the product left on long enough?
- Was the person really infested?
- Were other shampoos or conditioners used that may have interfered with treatment?
- Could the person have become reinfested with lice due to contact with an untreated infested person or an environmental source?
- Is this a case of resistant head lice?
- Was enough treatment product used?

Alternative therapies

There are many products marketed as effective treatments to get rid of head lice and nits. Limited research has shown that hot air treatment is effective in treating head lice, with such products as the Lousebuster.* Some of these products may be expensive and are being recommended as an institutionally-based machine. Hair dryers are not an effective means to get rid of head lice. Many products are listed as “natural.” It is important to remember the term “natural” does not always mean safe or effective. If you choose a product different than those previously mentioned to treat head lice, it is advisable to confirm that the product has been approved by the Federal Drug Administration (FDA) for use in the treatment of head lice. This information can be found on the product label. Products should also have a toll-free telephone number on the package so you can call the company with questions regarding possible side effects, what actions to take if side effects occur and proper use. Products should list the active ingredient(s) so you can consult with a health-care provider or pharmacist about the possibility of allergic reactions, possible side effects and contraindications of use of the product if needed.

Home remedies have been around as long as head lice. Examples of home remedies include olive oil, mineral oil, petroleum jelly, mayonnaise and vinegar. The most common of these are the oil-based products applied to the hair and then covered by a shower cap or plastic wrapping. Oil-based products appear to work by clogging the breathing pores of the louse, thereby smothering or suffocating it. It should be noted that these products are generally difficult to remove from the hair. Also, scientific studies have not found oil-based products as effective as pediculicides. Home remedies such as dying hair will not get rid of head lice.

Head shaving and/or cutting hair

Some parents may want to shave the child’s head to get rid of the lice problem. Shaving or cutting hair may be at a high emotional cost to the child and is not necessary. Others think cutting a child’s hair reduces the chance of infestation. Shorter hair may make it easier to locate and remove lice and nits, but does not reduce the risk of infestation.

* = Use of brand names does not endorse the specific product. Any similar product may work as well as those mentioned.



SAFETY PRECAUTIONS

NEVER USE:

Treatment should never consist of toxic and/or flammable household products such as kerosene, gasoline, paint thinner, turpentine or any other household cleaners. Pesticides intended for use on insects or bugs other than head lice, or pesticides intended for use on animals, should not be used on humans. **Every year children are killed or seriously burned as a result of these types of products.**

NEVER:

Never put a child to bed with a shower cap or with plastic covering his or her head! This can cause a suffocation concern.

3) Cleaning of personal items and the environment

When it comes to the cleaning of personal articles and the environment, it is important to remember:

- Head lice generally cannot survive more than 24 to 36 hours at room temperature off of a human host.
- The viable nits attached to hairs that become separated or detached from the human host may remain viable for between 10 to 14 days; however, there needs to be an ideal temperature for them to hatch and once the nits hatch, the nymphs must find a human host within hours to survive.
- You do not need to spend a lot of money for cleaning supplies. Sprays for the house and furniture are not needed and are not recommended. See page 17 for further comments on spray products.
- Even though cleaning the environment is important, excessive cleaning such as scrubbing walls is not necessary. Concentrate on heads, where lice live and feed. Appropriate initial treatment and a repeat treatment nine days following will go much further in managing head lice than excessive cleaning.

Family combs and brushes

- 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 plastic bag for two weeks (CDC).
- When possible, make sure every member of the household has his or her own comb or brush. Tell children not to share these items with others.

Articles of clothing and bedding

- To kill lice and nits, machine wash all washable clothing and bed linens used by the infested person(s) during the two days before treatment. Use the hot water (130°F) cycle during the washing process. Dry laundry using high heat for 20 minutes. (See the safety precaution on the next page regarding hot water heaters.)
- Washing clothes to remove lice and nits does not need to be repeated daily and is only necessary on the day of treatment and retreatment.
- Articles that cannot be machine washed, such as stuffed animals, pillows or comforters, can be vacuumed, dry cleaned or stored in a sealed plastic bag for two weeks. Remember to keep plastic bags out of the reach of young children, as the bags may pose a suffocation hazard. Another option is to place the item in a hot dryer for 20 minutes, if the recommended care label approves the use of dryers.



**SAFETY
PRECAUTIONS**

Many pediatricians and safety groups recommend hot water heaters in the home be set to a temperature of no more than 120°F to help reduce scalding burn accidents to children. If the hot water heater is increased to 130°F for the purpose of cleaning head lice articles, remember to turn down the heater after the washing has been completed.

Treatment of the environment

- The spread of head lice by contact with inanimate objects may occur, but is very uncommon. Head lice would have difficulty attaching firmly to smooth or slippery surfaces like plastic, metal, polished synthetic leathers and other similar materials. In addition, head lice cannot survive on inanimate objects (CDC, 2010).
- Floors, carpet, upholstered furniture, pillows and mattresses should be vacuumed to pick up any hairs that may have living lice or nits attached to them.
- Vehicle car seats and child safety seats can be cleaned by vacuuming or running a lint remover (rollers with sticky surfaces) over the seats.



**SAFETY
PRECAUTIONS**

The use of pediculicidal (or pesticides) or insecticidal sprays is strongly discouraged and is NOT recommended, as these may be harmful to family member and pets.

Remember, head lice can infest all people regardless of age, race and socioeconomic status or hygiene practices. No disease or health risks have been associated with head lice. It is important to avoid treatments (of individuals or the environment) that pose a greater risk than the condition of head lice.

4) Repeat treatment with the pediculicidal product

No treatment is 100 percent effective. Some nits may survive the initial treatment and hatch live nymphs. Retreat nine days after the initial treatment if not otherwise specified on the product label. A second treatment with the pediculicidal product should kill any newly hatched nymphs prior to them maturing into lice and gaining their ability to lay new nits.

- The procedure outline on page 13 should be repeated.
- All precautions and safety guidelines discussed on pages 12 to 17 should be followed.

Manual Removal of Nits

Although removing all nits from the hair may be done to reduce worries of another lice infestation, or for cosmetic reasons, research has shown the removal of nits may not be necessary. The application of a second treatment completed nine days after the first treatment should kill any newly hatched lice prior to maturity and their ability to lay nits.

The American Academy of Pediatrics and the North Dakota Department of Health do not recommend “no-nit” policies as they have not been shown to be effective in reducing the incidence of head lice.

Child-care sites and schools may still require children to be nit-free before returning to the child-care facility or school. These policies vary from one setting to another. Parents should be familiar with the head lice policies of the facility or school their children attend. If your child’s facility has a “no-nit” policy or if you feel you need to remove them for aesthetic reasons, the following actions should assist you in the process of removing nits.

- It is not recommended to self-treat, which means trying to remove nits from your own head, as this is very difficult to do.
- Wearing gloves during lice/nit removal is a personal choice; however, it is not necessary. There is very little chance of spreading the infestation, and gloves often make the job more difficult.
- Work in an area with good visibility and light, such as from a lamp or natural sunlight through a window. It may be easier to see and remove nits during the day when there is more natural light.
- Hair should be clean, damp and untangled.
 - ▷ Use a grooming comb or hairbrush to remove tangles.
 - ▷ During the combing to remove the nits, using a lice or nit comb is most effective. If one is not available, use a comb with closely spaced teeth.
 - ▷ It is best to have hair that is slightly damp when removing the nits.
 - If the hair is too wet, the nit comb slips through too quickly.
 - If combing is done on dry hair, individuals often complain of discomfort.
- Part the hair into sections and hold sections in place with rubber bands or hair clips.
 - ▷ Separating the hair into small sections makes it easier to see lice and nits.
- Comb and/or pick out all the nits.
 - ▷ Some examiners recommend combing the hair slowly away from the scalp, inserting the comb as close to the scalp as possible and pulling the comb completely through the hair from root to the end. Pay special attention to the nits right next to the scalp.



- ▷ Others advise holding the hair at the end and combing with a back motion towards the scalp, reporting this approach as more likely to break the nit from the glue-like substance that attaches it to the hair shaft.
- Comb one section at a time, pulling the comb slowly through the hair several times.
 - ▷ Examine all sides of the hair shafts for nits.
 - ▷ Although using a nit comb removes most of the nits, sometimes you may need to remove a stubborn nit by pinching it between two fingernails.
 - ▷ If you are unable to remove a stubborn nit by combing or with your fingernails, you can simply cut off the hair shaft with a small scissors.
 - ▷ Check the section one last time to make sure it's clean and then pin it out of the way by curling it flat against the head. This will help you keep track of the sections you have already combed and those that still need combing.
- Check the comb after each pass through the hair. Whenever you comb out nits or lice, clean the comb under running water or dip it into a bowl of water. You also can clean the comb with a paper towel or tissue. Hold the comb up to the light to make sure it is completely clean before the next stroke.
 - ▷ Paper towels or tissue can be thrown into the garbage. Simply tie the garbage bag and remove from the house when finished.
 - ▷ Clean the comb under running water. Rinse the sink with hot running water when finished.
- After combing is complete, soak the lice comb in hot water (130°F) for at least 10 minutes. Use an old toothbrush to clean the comb.
 - ▷ Check the comb under a bright light to make sure all lice and nits are gone. The comb can now be used on another family member or is ready for the next combing.
- When fingernails are used to remove nits, they also should be cleaned frequently during and after the process. Wash with soap and water and use a nail brush.

There are many different nit-removal combs on the market. Nit combs often are included in the packages of many head lice removal products. The comb should have an inner tooth space smaller than the nits (0.5 to 0.8 mm) to be effective. Combs that are light-colored allow for better visualization than dark-colored combs. Metal combs are sturdier and less apt to break than plastic combs. Well-designed combs that meet these requirements often can be bought at pet stores for less money.

Head lice can infest all people, regardless of age, race, socioeconomic status or hygiene practices. Take care not to blame anyone if an infestation occurs in your household. Head lice are not life threatening, nor do they carry disease. They are just annoying, so try to keep things in perspective.

Schools, Child Care and Groups

There is no state law governing the management of head lice control in schools or child-care centers. The National Association of School Nurses and the American Academy of Pediatrics support the position not to exclude children from school due to head lice. The North Dakota School Boards Association also supports this position.

General recommendations

- It may be helpful to periodically provide information for parents and caregivers about the prevention of, diagnosis and treatment of head lice, along with information about local policy.
- If a child is demonstrating symptoms, have a school nurse, public health nurse, medical provider or designated trained staff person check the student's head.
- If a child is found to be infested with head lice during school or child care, he or she can remain in class. There are no known health risks from head lice, and research has shown immediate removal of children from school or child care is not effective in controlling or reducing the spread of head lice.
- Confidentiality must be maintained. Removing a child immediately after a screening increases the risk of breaks in confidentiality.
- When a child is found to be infested, they should be treated as soon as possible after school that day and should be discouraged from having head-to-head contact with others.
- Parents of children with positively identified infestations of head lice should be notified that day by phone if possible. If phone contact is unsuccessful, a note should be sent home with the child. The parents should be encouraged to provide prompt treatment after school or child care, with a second treatment provided nine days following the first dose. The parents also should be encouraged to have all household members screened. All household members found to be infested also should be treated.
- Children likely to have had direct head-to-head contact (such as hugging or sharing pillows) with an infested child in the past 48 hours also should be screened. Efforts should focus on maintaining privacy during the screening.
- Routine classroom or school-wide screening is discouraged. Screening for nits alone is not an accurate method of diagnosing head lice. Routine lice screenings of large numbers of children in school have not been proven to have significant effects on reducing the incidence of head lice in schools.



Developing a policy

It is recommended that schools and child-care settings develop a written policy addressing how infestations or suspected infestations of head lice will be managed in the school/child-care setting.

Points to consider and address within a policy include:

- Inspection/screening procedures.
 - ▷ Who will inspect children demonstrating symptoms?
 - ▷ How will inspections be managed?
- Maintaining confidentiality of the children.
- Parent/guardian notification.
- Exclusion protocol – (Example) A child with head lice can remain in class unless he or she is unable to participate due to discomfort. Children with head lice should avoid head-to-head contact with others and should be treated after school or child care.
- Communication process for parents and staff regarding education about head lice and local policy.
- Protocol for responding to treatment refusals.
- If or when referrals will be made to other agencies.

Written policies and procedures regarding specific responsibilities and recommendations will facilitate efficient and consistent implementation by all schools and child-care centers. These help to ensure all children are treated in a fair and equal manner.

Seek input from your local public health unit, clinics/health-care providers, child-care health consultants, child-care providers and school personnel in the development of a head lice management policy. To locate the child-care health consultant in your area, contact your local Child Care Resource and Referral agency. For more information, visit www.childcare.org/contact/ or www.ndhealth.gov/localhd/.

The “no-nit” standard

When a “no-nit” policy is in place, infested children are sent home when lice or nits are found on the child. The child needs to be treated and all nits removed before they are allowed back in the school or child-care facility. Although “no-nit” policies were the norm for schools and/or child-care facilities in the past, research has shown they do not decrease the occurrence of head lice. However, they do result in increased absences of children from school or child care. They also increase the risk of violating the privacy of the children involved. Several medical organizations, such as the American Academy of Pediatrics, no longer endorse “no-nit” policies. Other disadvantages of “no-nit” policies include:

- Studies show “no-nit” policies increase the risk of incorrect diagnosis of head lice and have no bearing on reducing the incidence of head lice.
- “No-nit” policies may be carried out too rigidly, and students are often excluded from school due to misidentification of nits or the presence of nonviable nits.
- Mandatory exclusion may hinder academic performance and increase social stigma.
- “No-nit” policies, and the increase of an incorrect diagnosis associated with them, may lead to overuse of lice treatment products as parents/caregivers try to eliminate lice and nits.



Recommended preventive measures

- Regularly vacuum carpeted or upholstered areas and wipe down any sport or nap mats with a damp cloth.
- For young children in school or child care who nap, bedding/pillows should not be shared. Store nap items separately and space mats/cots so children are not touching when they are napping.
- If an outbreak of head lice occurs, assign individual lockers or cubbies. If lockers are not available, assign hooks 12 or more inches apart, or have the children hang their coats on the backs of their chairs.
- If bus drivers express concern regarding outbreaks of head lice, they can wipe school bus seats with a damp cloth.
- If cars or vans are used for transportation, regularly vacuum upholstered seats or go over them with a lint remover (rollers with sticky surface).
- Although indirect transmission of head lice is rare, the sharing of headphones should be avoided if possible.
- While it is recommended that children should avoid sharing items such as helmets, safety should be the first priority as the risk of transmission is low.
- Data show that head lice are unlikely to spread by the water in a swimming pool, even though chlorine levels in water do not kill head lice. Head lice hold tightly onto human hair underwater. Head lice are more likely to be spread through sharing personal items with an infected person, such as towels and combs.
- Swimming or washing hair within one to two days after head lice treatment might make some treatments/medications less effective.



SAFETY PRECAUTIONS

The use of insecticides, lice sprays or environment fumigants of any kind to fog the school or child-care room or to treat walls, floors, desks and carpets is of no value in the control of head lice. These products are more harmful to people and pets than they are effective. The CDC, the AAP and the North Dakota Department of Health strongly discourage the use of these spray products for the control of head lice.

Myths and Facts

Myths	Facts
<i>It is easy to get lice.</i>	Lice are spread by head-to-head contact and are much harder to get than a cold, the flu, ear infections, pink eye, strep throat or impetigo.
<i>Avoiding lice is important, as they are dirty and spread disease.</i>	Lice do not spread any known disease, nor are they impacted by dirty or clean hygiene. They are just annoying.
<i>Head lice are very sturdy creatures and can survive many days off of people in furniture, linens or clothing.</i>	Head lice need a blood meal every few hours and the warmth of the human scalp to survive. When off the human body, they cannot survive for more than 24 to 36 hours.
<i>Nits (lice eggs) can fall off a person's head, hatch and cause another person to get lice.</i>	Nits are glued to the hair shaft by a cement-like substance and are very hard to remove. When a nymph (baby louse) is hatched, it must quickly have the warmth and food source of a head to survive.
<i>Cutting a person's hair will prevent head lice infestations.</i>	The length of a person's hair does not impact his or her risk of getting head lice.
<i>You can get head lice from sitting in a desk next to someone who is infested with head lice.</i>	Head lice are spread through direct head-to-head contact. The lice do not hop, jump or fly, so sitting near someone with head lice does not increase the risk of getting the lice.
<i>Lice are commonly spread throughout schools.</i>	Transmissions in schools are rare. It is more common to get head lice from family members, overnight guests and playmates who spend a lot of time together.
<i>Lice are commonly spread through hats or helmets.</i>	Although spread through hats or helmets is possible, it is rare. It is more common for transmission to occur from pillows, hairbrushes or sheets. The most common type of transmission is from head-to-head contact.

Myths	Facts
<i>Schools and child-care facilities should screen all children for head lice, so everyone can be treated and the spread of head lice will be prevented.</i>	Having regularly scheduled mass screenings does not reduce the incidence of head lice.
<i>“No-nit” policies reduce the risk of head lice in schools and child-care facilities.</i>	Research shows “no-nit” policies do not decrease the number of cases of head lice. They do increase the risk of incorrect diagnosis of head lice, the number of days children are out of school, and negative social stigma associated with head lice. They also may hinder academic performance.
<i>The only way to ensure you will not get head lice after a treatment is to remove all the nits.</i>	Studies have shown the removal of nits immediately after treatment with a pediculicide is usually not necessary.
<i>You can get lice from your dog or other pets.</i>	Head lice are specific to humans. You can get human lice only from other humans. You cannot give your pets lice.

**What are head lice?**

Head lice are small insects (less than 1/8-inch long). They range in color from red to brown, black, yellow-tan or gray-white. Head lice live on blood they draw from the scalp and lay tiny, gray/white eggs (known as nits) on a hair shaft near the scalp. The warmth from the scalp is needed for the eggs to hatch. Head lice are not known to spread disease.

Who is at risk for head lice?

Head lice infestations occur in all socioeconomic groups, are not an indication of poor hygiene, and can affect anyone.

What are the symptoms of head lice?

Most people who have head lice do not have symptoms at all. When symptoms do occur, the most common signs include itching of the skin on the scalp or neck where lice feed. Nits are glued to hair, commonly behind ears and at or near the nape of the neck. Scratching, especially behind and around ears and at the nape of the neck, may lead to open sores and a bacterial infection that also may cause swollen lymph nodes.

How soon do symptoms appear?

Symptoms appear when a live louse is present.

How are head lice spread?

Head lice are spread most commonly by direct contact with hair. Additionally, infested people can also spread head lice by sharing combs, brushes, hats, blankets or sheets with others, but this is not very common. It can be spread only by live lice and not nits.

When and for how long is a person able to spread head lice?

Head lice will spread until they are treated with a chemical that kills lice and until the eggs have been killed or removed. Research has shown that removal of nits may not be necessary.

How is a person diagnosed?

Diagnosing head lice is done by identifying the presence of live lice or nits within ¼-inch of the scalp. Identification of eggs and lice with the naked eye is possible; however, the use of a hand lens or microscope may help to confirm the identification.



What is the treatment?

Over-the-counter treatments and prescriptions that kill lice and most viable eggs are available. Follow the directions on the label. Retreat nine days after initial treatment if not otherwise specified on the product label. Contact your health-care provider or local public health unit for more information.

Does past infection make a person immune?

No. A person who previously had head lice may get it again.

Should children or others be excluded from child care, school, work or other activities if they have head lice?

No. Young children with head lice do not need to be excluded from child care and school, but they should be treated as soon possible after diagnosis. However, try to minimize any activity that involves the child in head-to-head contact with other children or sharing of any headgear until after the child has been completely treated.

Additionally, older children and adults do not have to be excluded from child care, school, work or other activities, but should be treated as soon as possible after diagnosis. Just like younger children, older children and adults should minimize any activity that involves head-to-head contact with other people or sharing of any headgear until after treatment has been completed.

What can be done to prevent the spread of head lice?

Follow these steps to prevent the spread of head lice:

- Avoid sharing headgear, coats, hats, hair ornaments, helmets, headphones, combs, brushes, towels, and bedding.
- Combs and brushes should be washed in hot water (130°F) for 10 minutes.
- Items that cannot be washed should be bagged and stored for two weeks.
- Provide separate storage areas for clothing so that the personal articles of one person do not touch the personal articles of another.
- When an infestation is found, check the hair and scalp of all household members and treat only those who have lice and those who share the same bed with the infested person

Additional Information

For additional information about head lice, head lice removal, school exclusions, etc., contact the North Dakota Department of Health, Division of Family Health, at 800.472.2286.

Resources:

American Academy of Pediatrics. [Pediculosis capitis]. In: Pickering LK, ed. *Red Book: 2009 Report of the Committee on Infectious Diseases*. 28th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2009: [495-497]

North Dakota Department of Health. (2012). *Head Lice: A Lousy Problem*. Division of Family Health. pp.1-30.

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.



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 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 ¼-inch to 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.

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 prevent head lice and should not be used as a substitute for screening.

There are many lice treatment products available, which can be found at area drug stores or grocery stores. Most nonprescription pediculicidal products contain Permethrin 1% or Pyrethrin (such as Nix or RID*). 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 ¼-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, health-care provider, clinic or pharmacy.



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 health-care provider for further instructions.

Using a head lice treatment product will not prevent you from getting head lice.

* 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 used by the infested person(s) during the two days before treatment. Use the hot water (130°F) cycle during the washing process. Dry laundry using high heat for 20 minutes.

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



Articles that cannot be machine washed, such as stuffed animals, pillows or comforters, can be vacuumed, dry cleaned or stored in a sealed plastic bag for two weeks. Another option is to place the item in a hot dryer for 20 minutes, if the recommended care label approves use of dryers.

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



The use of lice sprays for the house can be dangerous and is not recommended.

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.



NORTH DAKOTA
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