Head Lice Infestation

Division of Parasitic Diseases

What are head lice?

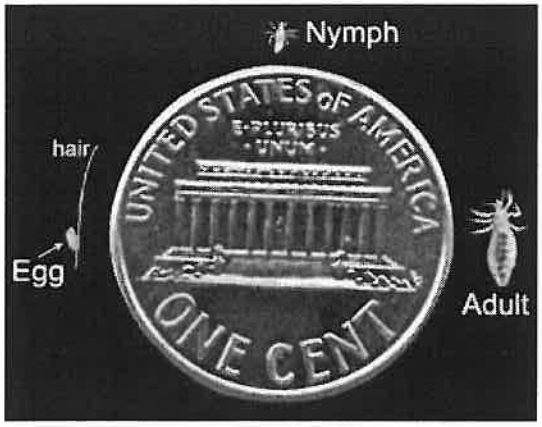
Also called *Pediculus humanus capitis* (peh-DICK-you-lus HUE-man-us CAP-ih-TUS), head lice are parasitic insects found on the heads of people. Having head lice is very common. However, there are no reliable data on how many people get head lice in the United States each year.

Who is at risk for getting head lice?

Anyone who comes in close contact (especially head-to-head contact) with someone who already has head lice is at greatest risk. Occasionally, head lice may be acquired from contact with clothing (such as hats, scarves, coats) or other personal items (such as brushes or towels) that belong to an infested person. Preschool and elementary-age children, 3-11, and their families are infested most often. Girls get head lice more often than boys, women more than men. In the United States, African-Americans rarely get head lice. Personal hygiene or cleanliness in the home or school has nothing to do with getting head lice.

What do head lice look like?

There are three forms of lice: the egg (also called a nit), the nymph, and the adult.



Actual size of the three lice forms compared to a penny.

Nit: Nits are head lice eggs. They are very small, about the size of a knot in thread, hard to see, and are often confused for dandruff or hair spray droplets. Nits are laid by the adult female at the base of the hair shaft nearest the scalp. They are firmly attached to the hair shaft. They are oval and usually yellow to white. Nits take about 1 week to hatch. Eggs that are likely to hatch are usually located within 1/4 inch of the scalp.

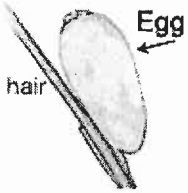


Illustration of egg on a hair shaft.

Nymph form

Nymph: The nit hatches into a baby louse called a nymph. It looks like an adult head louse, but smaller. Nymphs mature into adults about 7 days after hatching. To live, the nymph must feed on blood.

Adult: The adult louse is about the size of a sesame seed, has six legs, and is tan to greyish-white. In persons with dark hair, the adult louse will look darker. Females, which are usually larger than the males, lay eggs. Adult lice can live up to 30 days on a person's head. To live, adult lice need to feed on blood. If the louse falls off a person, it dies within 2 days.

Adult louse

Adult louse claw

Where are head lice most commonly found?

They are most commonly found on the scalp, behind the ears and near the neckline at the back of the neck. Head lice hold on to hair with hook-like claws found at the end of each of their six legs. Head lice are rarely found on the body, eyelashes, or eyebrows.

What are the signs and symptoms of head lice infestation?

- Tickling feeling of something moving in the hair.
- Itching, caused by an allergic reaction to the bites.
- Irritability.
- Sores on the head caused by scratching. These sores can sometimes become infected.

How did my child get head lice?

Contact with an already infested person is the most common way to get head lice. Head-to-head contact is common during play at school and at home (sports activities, on a playground, slumber parties, at camp).

Less commonly,

- Wearing clothing, such as hats, scarves, coats, sports uniforms, or hair ribbons, recently worn by an infested person.
- Using infested combs, brushes, or towels.
- Lying on a bed, couch, pillow, carpet, or stuffed animal that has recently been in contact with an infested person.

How is head lice infestation diagnosed?

An infestation is diagnosed by looking closely through the hair and scalp for nits, nymphs, or adults. Finding a nymph or adult may be difficult; there are usually few of them and they can move quickly from searching fingers. If crawling lice are not seen, finding nits within a 1/4 inch of the scalp confirms that a person is infested and should be treated. If you only find nits more than 1/4 inch from the scalp (and don't see a nymph or adult louse), the infestation is probably an old one and does not need to be treated. If you are not sure if a person has head lice, the diagnosis should be made by your health care provider, school nurse, or a professional from the local health department or agricultural extension service.

This fact sheet is for information only and is not meant to be used for self-diagnosis or as a substitute for consultation with a health care provider. If you have any questions about the disease described above or think that you may have a parasitic infection, consult a health care provider.

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Treating Head Lice

How can I treat a head lice infestation?

The most important step in treating a head lice infestation is to treat the person and other family members with head lice with medication to kill the lice. Wash clothing and bedding worn or used by the infested person in the 2-day period just before treatment is started.

Treat the infested person: Requires using an over-the-counter (OTC) or prescription medication. Follow these treatment steps:

1. Before applying treatment, remove all clothing from the waist up.
2. Apply lice medicine, also called pediculicide (peh-DICK-you-luh-side), according to label instructions. If your child has extra long hair (longer than shoulder length), you may need to use a second bottle. Pay special attention instructions on the bottle regarding how long the medication should be left on and whether rinsing the hair is recommended after treatment.

   WARNING: Do not use a creme rinse or combination shampoo/conditioner before using lice medicine. Don't re-wash hair for 1-2 days after treatment.

3. Have the infested person put on clean clothing after treatment.
4. If a few live lice are still found 8-12 hours after treatment, but are moving more slowly than before, do not retreat. Comb dead and remaining live lice out of the hair. The medicine may take longer to kill lice.
5. If, after 8-12 hours of treatment, no dead lice are found and lice seem as active as before, the medicine may not be working. See your health care provider for a different medication; follow treatment directions.
6. Nit (head lice egg) combs, often found in lice medicine packages, should be used to comb nits and lice from the hair shaft. Many flea combs made for cats and dogs are also effective.
7. After treatment, check hair and comb with a nit comb every 2-3 days to remove nits and lice. Continue to check for 2-3 weeks until you are sure all lice and nits are gone.
8. If using OTC pediculicides, retreat in 7-10 days. If using the prescription drug malathion, retreat in 7-10 days ONLY if crawling bugs are found.

Treat the household: Head lice do not survive long if they fall off a person and cannot feed. You don't need to spend a lot of time or money on house cleaning activities. Follow these steps to help avoid re-infestation by lice that have recently fallen off the hair or crawled onto clothing or furniture.

1. To kill lice and nits, machine wash all washable clothing and bed linens that the infested person wore or used during the 2 days before treatment. Use the hot water (130° F) cycle. Dry laundry using high heat for at least 20 minutes.
2. Dry clean clothing that is not washable, (coats, hats, scarves, etc.).

   OR

   Store all clothing, stuffed animals, comforters, etc., that cannot be washed or dry cleaned into a plastic bag; seal for 2 weeks.

Division of Parasitic Diseases

3. Soak combs and brushes for 1 hour in rubbing alcohol, Lysol*, or wash with soap and hot (130° F) water.
4. Vacuum the floor and furniture. The risk of getting re-infested from a louse that has fallen onto a carpet or sofa is very small. Don't spend a lot of time on this. Just vacuum the places where the infested person usually sits or lays. Do not use fumigant sprays; they can be toxic if inhaled or absorbed through the skin.

Prevent Reinfestation: Lice are most commonly spread directly by head-to-head contact and much less frequently by lice that have crawled onto clothing or belongings. As a short-term measure to control a head lice outbreak in a community, school, or camp, you can teach children to avoid playtime and other activities that are likely to spread lice.

- Avoid head-to-head contact common during play at school and at home (sports activities, on a playground, slumber parties, at camp).
- Do not share clothing, such as hats, scarves, coats, sports uniforms, or hair ribbons.
- Do not share infested combs, brushes, or towels.
- Do not lie on beds, couches, pillows, carpets, or stuffed animals that have recently been in contact with an infested person.

My child has head lice. I don't. Should I treat myself to prevent being infested?

No, although anyone living with an infested person can get head lice. Check household contacts for lice and nits every 2-3 days. Treat only if crawling lice or nits (eggs) within a 1/4 inch of the scalp are found.

I have heard that head lice medications don't work, or that head lice are resistant to medication. Is this true?

Like germs that are resistant to antibiotics, some lice also develop resistance to the medicine used to kill them. Resistance tends to be scattered. It may be present in one neighborhood, but not another. However, there are many reasons why medications may seem not to work.

- **Misdiagnosis of a head lice infestation.** A diagnosis can be made if a person has crawling bugs on the head or many lice eggs within 1/4 inch (about the width of your little finger) of the scalp. Nits found on the hair shaft further than 1/4 inch from the scalp have already hatched. Treatment is not recommended for people who only have nits further than 1/4 inch away from the scalp.
- **Not following treatment instructions fully.** Common problems include:
    1. making the hair too wet with water before applying a pediculicide -- this dilutes the pediculicide
    2. using a creme rinse or conditioner shampoo before applying a pediculicide -- this interferes with the medication
    3. failure to leave the pediculicide on long enough -- follow drug label instructions
    4. re-shampooing the hair again immediately after applying the pediculicide -- don't rewash hair for 1-2 days after treatment
    5. inadequate amount of medication -- extra long hair may require two bottles of pediculide to fully wet the hair
    6. not combing. Using medication alone may not be enough to cure a head lice infestation. Combing the hair to remove lice and eggs has been shown to help.

Division of Parasitic Diseases

- **Medication not working at all (resistance).** If head lice medication does not kill any crawling bugs within 24 hours, then resistance is likely. If the medication kills some of the bugs or the bugs are twitching 24 hours after treatment then resistance to medication is probably not occurring.
- **Medication kills crawling bugs, but is not able to penetrate the eggs.** It is very difficult for head lice medication to penetrate the nit shell. Medication may effectively kill crawling bugs, but may not treat the nits. This is why follow-up treatment is recommended.
- **New infection.** You can get infested more than once with head lice. Children often get re-infested from a playmate. If your child is infested, discuss it with parents of the children your child plays with. Treating all infested children at the same time will help prevent reinfestation.

Should my pets be treated for head lice?

No. Head lice do not live on pets.

My child is under 2 years old and has been diagnosed with head lice. Can I treat him or her with prescription or OTC drugs?

For children under 2 years old, remove crawling bugs and nits using a nit comb. If this does not work, ask your child's health care provider for treatment recommendations. The safety of head lice medications has not been tested in children 2 years of age and under.

What OTC medications are available to treat head lice?

Many head lice medications are available at your local drug store. Each OTC product contains one of the following active ingredients.

1. **Pyrethrins** (pie-WREATH-rins): often combined with piperonyl butoxide (pie-PER-a-nil beu-TOX-side):
   Brand name products include A-200*, Pronto*, R&C*, Rid*, Triple X*.

   Pyrethrins are natural extracts from the chrysanthemum flower. Though safe and effective, pyrethrins only kill crawling lice, not unhatched nits. A second treatment is recommended in 7-10 days to kill any newly hatched lice. Treatment failures are common.

2. **Permethrin** (per-meth-rin):
   Brand name product: Nix*.

   Permethrins are similar to natural pyrethrins. Permethrins are safe and effective and may continue to kill newly hatched lice for several days after treatment. A second treatment may be necessary in 7-10 days to kill any newly hatched lice that may have hatched after residual medication from the first treatment was no longer active. Treatment failures are common.

What are the prescription drugs used to treat head lice?

1. **Malathion** (Ovide*): When used as directed, malathion is effective in treating lice. Some medication remains on the hair and can kill newly hatched lice for seven days after treatment. Malathion is intended for use on people 6 years of age and older. Few side-effects have been reported. Malathion may sting if applied to open sores caused by scratching. The medication is flammable.
2. **Lindane** (Kwell*): When used as directed, the drug is probably safe. Overuse, misuse, or accidentally swallowing Lindane can be toxic to the brain and other parts of the nervous system. For those reasons Lindane is generally used only if

Division of Parasitic Diseases

other medications have failed. Lindane should not be used if excessive scratching has caused open sores on the head. It should be used with caution in persons who weigh less than 110 pounds.

Which head lice medicine is best for me?

If you aren't sure, ask your pharmacist or health care provider. When using the medicine, always follow the instructions on the package insert unless the physician directs otherwise.

When treating head lice

1. Do not use extra amounts of the lice medication unless instructed. These drugs are insecticides and can be dangerous when misused or overused.
2. Do not treat the infested person more than three times with the same medication if it does not seem to work. See your health care provider for alternative medication.
3. Do not mix head lice drugs.

Should household sprays be used to kill adult lice?

No. Spraying the house is NOT recommended. Fumigants and room sprays can be toxic if inhaled or absorbed through the skin.

Should I have a pest control company spray my house?

No. Vacuuming floors and furniture is enough to treat the household.

**Use of trade names is for identification purposes only and does not imply endorsement by the Public Health Service or by the U.S. Department of Health and Human Services.*

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