

PEDICULOSIS

REPORTING INFORMATION

While pediculosis is not an individually reportable condition in Ohio, outbreaks are required to be reported. In addition, there are specific isolation requirements for individuals with pediculosis.

AGENTS

Pediculus humanus capitis: Head Louse. *Pediculus humanus corporis*: Body Louse. *Phthirus pubis*: Pubic or Crab Louse.

CASE DEFINITION

The current edition of the Centers for Disease Control and Prevention (CDC) "Case Definitions for Infectious Conditions Under Public Health Surveillance" does not list a case definition for national surveillance of pediculosis. See "Signs and Symptoms" and "Diagnosis" below for reporting guidelines in Ohio.

SIGNS AND SYMPTOMS

Head lice infest people of all ages but are especially common on preschool and elementary school aged children, including their household members and caretakers. Head lice are not a sign of poor hygiene and all socioeconomic groups are affected. The adult head louse measures 2-4 mm long and is adapted to life on human hair and the scalp.

Less commonly, lice can also be found on eye brows and eye lashes. Head lice infest the areas around the head and neck and attach eggs (called nits) approximately 4-6 mm from the base of the hair shaft. Lice and nymphs are generally a dull yellow or tan to grayish-white in color, but will appear to be gray or almost black when full of blood. A louse may appear darker in a person with dark hair.

The life cycle involves three stages: eggs, nymphs, and adults. Incubation of the egg takes 6-12 days. The most suitable temperature range for egg production and hatching is from 84.2°F to 89.6°F. Sexual maturity is reached in 7-12 days. A mature female louse can lay 3-10 eggs (nits) per day, but they will only develop if the female has mated. The life span of an adult louse is about 30 days on the head of a host.

The female louse attaches her eggs (nits) to hair shafts close to the scalp with a waterproof, glue-like substance. Nits are frequently pale yellow or white color, but may also become dark if the embryo dies, or will be transparent after the louse emerges. Live nits may also appear to be the same color of the hair of the infested individual.

Live nits and crawling lice indicate infestation. Itching (pruritis) is a side effect of the feeding process and is the primary symptom caused by an allergic reaction to the louse bites. People will often not experience symptoms; therefore itching should not be relied upon as a definitive diagnostic sign. The first time an individual is infested with lice, it may take up to 4 to 6 weeks before itching develops.

Other signs and symptoms of an infestation may include the following: a tickling feeling in the hair or a sensation of something moving, sleeplessness or irritability, and/or sores in the head caused by scratching (the sores can become infected with bacteria). A thorough examination of the head will reveal the telltale yellowish to white nits. Adult head lice can live only a day or so off the human head without blood for feeding. Nymphs (young head lice) can live only for several hours without feeding on a human. Nits (head lice eggs) generally die within a week away from their human host and cannot hatch at a temperature lower than that close to the human scalp.

Head lice do not transmit diseases.

Body lice are generally found only in human populations with extremely poor hygiene living in crowded conditions. Body lice hide in the seams of clothing, getting on the infested person's skin to feed only at intervals, generally in areas of the body where clothing is in close proximity to the body, such as the waist, arm pits, thighs, and groin. A small red macular or papular dermatitis with a central punctum or urticarial wheal is the characteristic lesion of body louse infestations. Long-lasting infestations of heavily-bitten areas of the skin, typically on the mid-section, can become thickened and discolored (dark).

Fomites have a role in the transmission of body lice. Body lice are unable to survive away from a host (human blood source) longer than 5 to 7 days at room temperature.

Pubic Lice. Under the microscope, pubic lice resemble small crabs which live in the ocean; hence, the terms "crab lice" and "crabs" are frequently used to refer to an infestation. All age groups can be infested; however, infestations are more prevalent in sexually active adults. Pruritis (itching) of the anogenital area is a common symptom of pubic lice infestations. Pubic lice are typically found in the pubic region, but can also infest other coarsely haired parts of the body, such as eye lashes, eye brows, facial hair, body hair (e.g. axilla), perianal area, and very rarely on the scalp. (If a louse is found on the head, it is generally head lice, not pubic lice). They are transmitted from one person to another by direct, usually sexual, contact.

Although not always present, a characteristic bluish or slate-colored grouping of lesions on the trunk, thighs and upper arms can be common on individuals with a heavy pubic lice infestation. These lesions are called maculae caeruleae or "sky-blue spots." Pubic lice on the head (eyelashes or eyebrows) of a child may be an indication of sexual exposure or abuse, although other modes of transmission are possible.

Occasionally, contact with bed linens, towels, or clothing used by infested person may spread pubic lice. Pubic lice are not known to transmit disease; however, individuals that are infested with pubic lice should be examined for other sexually transmitted diseases.

DIAGNOSIS

Definitive diagnosis of lice is made by identifying a crawling louse/lice. Diagnosis of **head lice** requires a thorough and careful examination of the hair and scalp. Nits are commonly found on the hairs at the nape of the neck and behind the ears where they are protected from extremes of light and temperature, but they can be deposited anywhere on the scalp. The entire head should be examined. Head lice usually deposit their nits 4-6 mm or less from the scalp. (Hair grows at approximately 1 cm per month; therefore the length of the infestation can be estimated by the distance of the nit from the scalp). *Lice do not jump or fly.*

The method of examination is not standardized; however, the use of a wooden applicator stick, tongue blade or comb (even the nit combs often supplied with louse control products) will prove helpful to some. Gloves may be worn during examinations. Hand washing immediately after examination is important to prevent transmission of diseases of the scalp, such as ringworm. Alcohol wipes or swabs are not effective against lice or nits.

Transmission of head lice by the hands of the examiner has never been documented. Identification of lice can be facilitated by using a magnifying glass, comb and a good source of light. To accurately identify nits, a microscope is recommended.

Starting at the scalp, hair should be examined by moving the comb or other device up the hair shaft. Nits are stationary. It is important to distinguish a nit from dandruff, hair spray globules, irregularities in the hair shaft, or "hair casts." A nit is firmly cemented to the hair shaft and will not be removed easily.

The presence of a live louse or nymph on the scalp of a person is the best method to confirm the existence of a lice infestation. An experienced examiner might find only a few adult lice on the scalp. Separating the hair to view the base of the scalp and using a fine toothed comb may facilitate finding a live louse or nymph.

Refer to "Signs and Symptoms" for diagnosis of body and pubic lice.

EPIDEMIOLOGY

Source

Humans are the only hosts for these lice; they do not infest dogs, cats, or other animals or inanimate objects such as furniture, mattresses, bedding or carpets.

Occurrence

In the United States, infestation with head lice (*Pediculus humanus capitis*) is most common among preschool and elementary school-age children and their household members and caretakers. Head lice are not known to transmit disease; however, secondary bacterial infection of the skin resulting from scratching can occur with any lice infestation.

Getting head lice is not related to cleanliness of the person or his or her environment. Hair length, the frequency of shampooing or brushing does not influence the risk of a head lice infestation.

Head lice are mainly spread by direct contact with the hair of an infested person. The most common way to get head lice is by hair-to-hair contact with a person who already has head lice. Such contact can be common among children during play at school, home, and elsewhere (e.g. sports activities, playgrounds, camp, and slumber parties).

Uncommonly, transmission may occur by the following:

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

Reliable data on how many people get head lice each year in the United States are not available; however, an estimated 6 million to 12 million infestations occur each year in the United States among children 3 to 11 years of age. Some studies suggest that girls get head lice more often than boys, probably due to more frequent hair-to-hair contact.

In the United States, infestation with head lice is much less common among African-Americans than among persons of other races. The head louse found most frequently in the United States may have claws that are better adapted for grasping the shape and width of some types of hair but not others.

Body lice are common among populations with poor hygiene and in colder climates where heavy clothing is worn, clothing is not changed regularly, and bathing is infrequent. Pubic lice are found worldwide and occur in all races, ethnic groups, and in all levels of society.

Mode of Transmission

Lice are a moderately contagious infestation of humans.

Direct: Person-to-person, direct hair-to-hair contact with hair of an infested person is responsible for most louse infestations. Lice cannot jump or fly; however, they can move quickly when warm and well fed. Lice will leave a host that has a fever. Combined with overcrowding, a fever may increase risk for transmission because lice will leave to seek a new host without a fever.

Indirect: In addition to having a great deal of physical contact with others, school children tend to share lice carrying objects (fomites) more than other age groups. The risk of getting infested by a louse that has fallen into carpet or furniture is small. Head lice have no biologic urge to explore the fabric world and cannot survive off the host for longer than 24-48 hours (under ideal conditions of 72°F or higher and high humidity), as they require human blood to survive. Schools are generally free of live lice every Monday morning.

While uncommon, transmission is possible via objects (fomites) a short time after a louse is transferred to the object. Under ideal conditions, head lice can survive only 24-48 hours. The list of objects that can contribute to lice transfer includes the following:

- Brushes,
- Hats and scarves,
- Combs,
- Upholstered furniture,
- Pillows and cushions,
- Bed linens,
- Towels,
- Clothing,
- Costumes and masks,
- Stuffed animals, dolls, cloth-covered toys, and
- Carpeting.

Although the degree to which fomites contribute to infestations is not clear, it is believed that they might become more important in transmission as the number of infestations in a community increases. Fomites might play a more important role in warmer climates or homes occupied by heavily infested people.

Both hair-to-hair and, less commonly, indirect transfer account for the high percentage of intra-familial infestations. The opportunities for physical contact; the sharing of towels, brushes, and clothing; and the use of the same furniture by all family members are responsible for the high incidence of transmission. Bed sharing and holding small children should also be considered high risk factors. If a family member has been identified with a lice infestation, the entire family should be examined for the presence of lice. **Only treat individuals that have been identified with an active lice infestation.**

Period of Communicability

Transmission is possible immediately after infestation through completion of the initial shampoo treatment or as long as live lice and nits remain viable on the infested person or fomites. The life cycle of an adult louse is approximately one month. Unhatched eggs will not survive or hatch below 72°F and are destroyed when removed manually. If a nit is not kept at the same temperature found close to the scalp, the nit will typically be unable to hatch and will usually die within a week. Away from the scalp, a louse will survive less than two days.

PUBLIC HEALTH MANAGEMENT

Case

Treatment

Treatment should be initiated as soon as nits and/or lice are found. Proper management involves not only treating the individual, but examining anyone to whom lice may have spread and treating those that are infested, and treating or initiating a two week isolation of all fomites with which the infested person had contact.

Step One: The first step is to **treat the infested individual** by applying a medication that will kill lice and nits. An effective pediculicide kills all lice and as many eggs as possible. It should also have residual action so that any nymphs that hatch after treatment will also die. Children ≤ 2 years old should never be treated with pediculicides; lice and nits should be removed by hand.

Treatment requires using an over-the-counter (OTC) or prescription medication. The following are treatment steps per the Centers for Disease Control and Prevention (CDC):

1. Before applying treatment, it may be helpful to remove clothing that can become wet or stained during treatment.
2. Apply lice medicine, also called pediculicide, according to the instructions contained in the box or printed on the label. If the infested person has very long hair (longer than shoulder length), it may be necessary to use a second bottle. Pay special attention to instructions on the label or in the box regarding how long the medication should be left on the hair and how it should be washed out.

WARNING:

Do not use conditioner or a combination shampoo/conditioner before using lice medicine. Do not re-wash the hair for 1-2 days after the lice medicine is removed.

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. The medicine may take longer to kill all the lice. Comb dead and any remaining live lice out of the hair using a fine-toothed nit comb.
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. Do not retreat until speaking with your healthcare provider; a different lice medicine (pediculicide) may be necessary. If your healthcare provider recommends a different pediculicide, carefully follow the treatment instructions contained in the box or printed on the label.
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 each treatment, checking the hair and combing with a nit comb to remove nits and lice every 2-3 days may decrease the chance of self-reinfestation. Continue to check hair for 2-3 weeks to be sure all lice and nits are gone.
8. Depending on the medication, retreatment generally is recommended for most prescription and non-prescription (over-the-counter) drugs on day 9 in order to kill any surviving hatched lice before they produce new eggs. However, if using the prescription drug malathion, which is ovicidal, retreatment is recommended after 7-9 days ONLY if crawling bugs are found.

The following medications are available for the treatment head lice:

Over-the-counter Medications

Many head lice medications are available "over-the-counter" without a prescription at a local drug store or pharmacy. Each over-the-counter product approved by the U.S. Food and Drug Administration (FDA) for the treatment of head lice contains one of the following active ingredients. If crawling lice are still seen after a full course of treatment, contact your healthcare provider.

1. Pyrethrins combined with piperonyl butoxide
Brand name products: A-200*, Pronto*, R&C*, Rid*, Triple X*
Pyrethrins are naturally occurring pyrethroid extracts from the chrysanthemum flower. Pyrethrins are safe and effective when used as directed. Pyrethrins can only kill live lice, not unhatched eggs (nits). A second treatment is recommended on day 9 to kill any newly hatched lice before they can produce new eggs. Pyrethrins generally should not be used by persons who are allergic to chrysanthemums or ragweed.
2. Permethrin lotion 1%
Brand name product: Nix*
Permethrin is a synthetic pyrethroid similar to naturally occurring pyrethrins. Permethrin lotion 1% is approved by the FDA for the treatment of head lice. Permethrin is safe and effective when used as directed. It kills live lice but not unhatched eggs. Permethrin may continue to kill newly hatched lice for several days after treatment. A second treatment often is necessary on day 9 to kill any newly hatched lice before they can produce new eggs. Permethrin is not approved for use on children less than 2 years old.

Prescription Medications

The following medications approved by the U.S. Food and Drug Administration (FDA) for the treatment of head lice are available only by prescription. If crawling lice are still seen after a full course of treatment contact, your healthcare provider.

1. Malathion lotion 0.5%
Brand name product: Ovide*
Malathion is an organophosphate. Malathion lotion 0.5% is approved by the FDA for the treatment of head lice. The formulation of malathion approved in the United States for the treatment of head lice is a lotion that is safe and effective when used as directed. Malathion is pediculicidal (kills live lice) and partially ovicidal (kills some lice eggs). A second treatment is recommended if live lice are present 7-9 days after treatment. Malathion is intended for use on persons 6 years of age and older. Malathion can irritate the skin and scalp; eye contact should be avoided. Malathion lotion is flammable; do not smoke or use electrical heat sources, including hair dryers, curlers, curling or flat irons, when applying malathion lotion and while the hair is wet.
2. Benzyl alcohol lotion 5%
Brand name product: Ulesfia lotion*
Benzyl alcohol is an aromatic alcohol. Benzyl alcohol lotion 5% is a white topical lotion approved by the FDA for the treatment of head lice; it is considered safe and effective when used as directed. Benzyl alcohol kills live lice (i.e. it is pediculicidal) but does not kill unhatched lice eggs (i.e. it is not ovicidal). A second treatment with benzyl alcohol lotion is necessary on day 9 after the first treatment (or as recommended by the manufacturer) to kill any newly hatched lice before they can produce new eggs. Benzyl alcohol lotion is intended for use on persons who are 6 months of age and older. Benzyl alcohol can be irritating to the skin and eyes; contact with the eyes should be avoided.

3. Lindane shampoo 1%

Brand name product: None available.

Lindane is an organochloride. The American Academy of Pediatrics (AAP) no longer recommends it as a pediculocide. Although lindane shampoo 1% is approved by the FDA for the treatment of head lice, it is not recommended as a first-line therapy. Overuse, misuse, or accidentally swallowing lindane can be toxic to the brain and other parts of the nervous system; its use should be restricted to patients for whom prior treatments have failed or who cannot tolerate other medications that pose less risk. Lindane should not be used to treat premature infants, persons with HIV, a seizure disorder, women who are pregnant or breast-feeding, persons who have very irritated skin or sores where the lindane will be applied, infants, children, the elderly, and persons who weigh less than 110 pounds.

When treating head lice:

- Do not use extra amounts of any lice medication unless instructed to do so by your physician and pharmacist. The drugs used to treat lice are insecticides and can be dangerous if they are misused or overused.
- Do not treat an infested person more than 2-3 times with the same medication if it does not seem to be working. This may be caused by using the medicine incorrectly or by resistance to the medicine. Always seek the advice of your healthcare provider if this should happen. He/she may recommend an alternative medication.
- Do not use different head lice drugs at the same time unless instructed to do so by your physician and pharmacist.

Students diagnosed with live head lice do not need to be sent home early from school; they can go home at the end of the day, be treated, and return to class after appropriate treatment has begun. Nits may persist after treatment, but successful treatment should kill crawling lice. Follow-up care includes checking for nits and lice for 14 days post-retreatment. There is no problem readmitting children to school following the first treatment for head lice, even if nits remain. Head lice can be a nuisance, but they have not been shown to spread disease. Personal hygiene or cleanliness in the home or school has nothing to do with getting head lice.

Both the American Association of Pediatrics and the National Association of School Nurses advocate that "School No-Nit" policies be discontinued. CDC indicates that "no-nit" policies that require a child to be free of nits before they can return to schools should be discontinued for the following reasons:

- Many nits are more than ¼ inch from the scalp. Such nits are usually not viable and very unlikely to hatch to become crawling lice, or may in fact be empty shells, also known as casings.
- Nits are cemented to hair shafts and are very unlikely to be transferred successfully to other people.
- The burden of unnecessary absenteeism to the students, families and communities far outweighs the risks associated with head lice.
- Misdiagnosis of nits is very common during nit checks conducted by nonmedical personnel.

Step Two: The second step is to **examine all contacts** to which lice realistically might have spread and treat those that are infested. All household members should be examined: adults as well as children. In addition, anyone with whom the infested person had recent head-to-head physical contact or possibly shared lice-carrying fomites (e.g. classmates, playmates, babysitters in the case of infested children, and co-workers and acquaintances in the case of adults) should be notified and examined. If they are found to have lice or nits, their families and other contacts should be notified, and so on. It is only by attempting to

eliminate the entire chain of transmission that the cycle of infestation and reinfestation can be broken.

Step Three: The third step is **environmental control** by thoroughly cleaning bedding and all objects contacted by the infested individual in the 48-hour period before the initial treatment. Effective disinfection can be achieved by vacuuming, machine washing, machine drying, dry cleaning, ironing, freezing, or storing fomites in tightly sealed plastic bags for two weeks. The following recommendations are based on the fact that temperatures of 130° F or higher are lethal to lice and nits:

- Floors rugs, pillows, and upholstered furniture should be thoroughly vacuumed.
- All clothing, linen, and cloth toys that the infested person might have worn or handled in the 48 hours before diagnosis should be machine washed in hot water (130°F) or placed in a freezer overnight
- Items that cannot be machine washed but can be machine dried should be dried at the hottest setting for at least 20 minutes.
- Other items may be dry-cleaned, carefully vacuumed, placed in a freezer overnight, or sealed in plastic bags for two weeks.
- Combs and brushes should be soaked in hot water (130°F) for one hour.

Spraying classrooms or homes with insecticides is not recommended for cases of head louse infestation. Fumigant sprays can be toxic if inhaled or absorbed through the skin.

Isolation

Ohio Administrative Code (OAC) 3701-3-13 (Q) states:

"Pediculosis: a person with body lice shall be excluded from school or child care center until twenty-four hours after application of an effective pediculicide. A person with head lice shall be excluded from school or child care center until after the first treatment with an appropriate pediculicide."

Body Lice Management

Elimination of body lice and their eggs can be achieved through: 1) removal of lice from the body; 2) thorough cleaning of infested clothing and bedding by laundering in hot water followed by the hot dry cycle of the dryer or by dry cleaning; and 3) thorough bathing of the infested person. Further infestations can be prevented by regular bathing, improved hygiene, and changing into clean clothing (at least once per week). Clothing, bedding and towels should be laundered regularly.

Pubic Lice Management

Pubic lice and their eggs should be removed manually. All hairy areas of the body should be examined for the presence of lice. The pediculicides used to treat other kinds of louse infestations are effective for treatment of pubic lice (see Treatment). Caution should be used when inspecting, removing or treating lice on or near the eyelashes. Topical pediculicides should not be used for infestations on the eye lashes.

Prevention and Control

In the United States, the majority of pediculosis cases are diagnosed in fall and winter. This is probably the result of an increase in head lice during the ideal conditions of summer warmth and humidity. September has been declared "Pediculosis Prevention Month." The real key to controlling pediculosis is prevention (i.e. containing the problem before it can spread). Prevention involves encouraging students to keep an adequate distance from each other to prevent any direct head-to-head contact, educating to avoid habits that spread lice, educating parents of school-aged children to check regularly for lice or nits, educating

school staff and administration to check students for lice and nits and minimizing opportunities for sharing of fomites and educating the community in general about the control of pediculosis. Parents are ultimately responsible for routine monitoring of their children's hair for head lice and consulting their healthcare provider if lice are found. Parents should treat for infestation as directed by their healthcare provider.

A successful pediculosis prevention program requires cooperation among school staff, public officials, and health professionals to make information available to the public. Policy decisions regarding head lice control are ultimately up to the facilities and institutions to establish. Involvement of the local health department is strongly encouraged to develop an effective control program for successful prevention of protracted outbreaks. All policies should be sensitive to the appropriate protection of personally identifiable health information in the school setting as well as minimizing stigma related to head lice infestations.

The school environment should be checked for potential means of louse transmission and changes recommended if necessary. Children should be taught not to exchange combs, brushes, clothing or blankets and pillows. School property such as gym towels, athletic equipment and costumes should not be passed from child-to-child unless they are properly cleaned. At the beginning of each school year, written information about head lice prevention can be sent to parents, describing what the school is doing to prevent infestation and suggesting what parents can do at home. School officials can also arrange for a presentation by local health professionals at a parent-teacher association meeting.

If such preventive guidelines are followed at summer programs such as sleep-away camps and daytime programs, children will be more likely to enjoy a louse-free summer, and there will be less risk of infestation when they return to school in the fall.

SPECIAL INFORMATION

Revising Head Lice Policies in Schools

The nursing profession is moving toward evidenced-based practices. Updated guidance from CDC, AAP and the National Association of School Nurses (NASN) should be incorporated into school policies. School nurses in each school district should collaborate with their local health departments and school administration to create and enforce consistent policy guidelines throughout the district. Policies should include the etiology of pediculosis, the mode of transmission, a description of the lice screening process, information about how the parents will be notified of an infestation, and the recommended treatment protocol. Management schemes in the form of flow sheets developed by the Harvard School of Public Health will assist school nurses and school administrators in developing a draft school policy on the management of head lice. The draft policy should be presented to the superintendent and school board, revised and disseminated. Community resources should be identified to help families manage the costs of remediation of infestation. Parents, teachers and administrators should be educated on the policy before implementation. After the policy is implemented, it should be reassessed at regular intervals.

Written material and videotapes are available from the Ohio Department of Health (ODH). The videos available are: *Advice on Lice* and *Facts of Lice*. The videos may be reserved by calling the ODH Outbreak Response and Bioterrorism Investigation Team (ORBIT) at 614-995-5599. Information and help in outbreak investigation for local health departments may be obtained by contacting the ODH ORBIT at 614-995-5599.

The ODH, School and Adolescent Health Program has a reproducible brochure available at:

<http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/chss/school%20nursing/headlice.aspx>. The ODH School Nurse program provides policy consultation to school nurses and is available at 614-466-1930.

] SAMPLE LETTERS

[For Students with head lice]

Dear Parent:

Your child was examined today and found to have head lice.

Here is some information about head lice:

- Head lice are most common in children.
- Head lice do not cause other illness.
- Anyone can have head lice. It does not mean someone is dirty or poor.
- Head lice only live on people (not pets) and die if they are off people for 2 days.
- Head lice move from one person to another when people's heads touch.

Head lice are small insects about as long as a sesame seed. They are yellow-white to grey-white. **LICE DO NOT JUMP OR FLY. THEY DO NOT STAY ALIVE FOR LONG WHEN OFF THE HUMAN HEAD.** Head lice move fast on the scalp and are good at hiding in the hair.

You may find louse eggs called "nits" stuck to the hair. Nits are about the size of a typewritten comma. They may be yellow-brown to white. Each nit is stuck to a hair shaft near the scalp with a waterproof, cement-like substance. They are usually on hairs behind the ears and at the nape of the neck, but may be anywhere on the head. Nits cannot be washed or brushed out of the hair.

Now that you know your child has head lice, you must:

- 1.) Treat your child to kill the insects.
 - Get head lice shampoo from your doctor, pharmacy or local health department.
 - Follow the directions to use the shampoo. **DO NOT OVER TREAT!!**
 - An adult should put the shampoo on the child. Make sure it is on the scalp for the right length of time.
 - Pick the nits out of the child's hair.*
 - Then the child should put on clean clothes.
- 2.) Check the hair of other family members and close contacts for head lice. Be sure to check:
 - Babysitters,
 - Your child's close friends,
 - People where your child spent the night, and
 - Children in activities with your child, like sports team members.

If your child's friends have head lice and are not treated, your child could get them again.
- 3.) Any items that your child has worn or used on the head in the past 48 hours (2 days) should be cleaned:
 - Machine wash clothes and sheets in HOT water.
 - Machine dry clothes and sheets on HOT for at least 20 minutes.
 - Vacuum carpets and furniture.
 - **DO NOT USE PESTICIDES IN YOUR HOME TO TREAT FOR HEAD LICE!**
 - Do not treat pets for head lice as head lice do not live on pets.

Your child should return to school after treatment. The school nurse may check your child's hair and scalp for head lice when your child goes back to school.

Be sure to follow the instructions on the head lice shampoo. Many shampoo labels tell you to use it again in 7-10 days. You must do that to kill any lice that hatch from the nits during that time.

* Nit removal is very important for getting rid of head lice. Nit combs can help, but they may not get nits off the hair. To get nits out of your child's hair:

- Use a strong light so you can see the nits on the hairs.
- Use your finger tips and finger nails to find nits on the hairs.
- Use your fingers to pull nits off the hairs and drop the nits into soapy water.
- Wash your hands with soapy water after removing nits.

Please ask your school nurse if you have questions about head lice. Thank you for your help.

[For Contacts of children with head lice]

Dear Parent:

A case of head lice has been identified in your child's classroom. Please do your part to prevent the spread of this condition. Check your child(ren) daily for the next few weeks, and on a regular basis thereafter.

To see nits (eggs) and lice in your child's hair:

- Use a strong light so you can see the nits on the hairs or lice on the scalp.
- Use a comb to separate hair.
- Check the whole head with attention to the area behind the ears and back of the head above the collar.

If you should find head lice or their nits on your child(ren), or have questions or need assistance, please contact the school nurse at _____.

Thank you for your cooperation.

[Note: You may wish to include paragraphs 2, 3 and 4 of the preceding letter.]

What is Pediculosis?

Pediculosis is an infestation of the body with human lice - adults, nymphs and/or nits (eggs). The crawling stages of lice feed on human blood, causing severe itching.

There are three types of human lice, each of which requires a different environment to survive. Only specific portions of the human body are infested by each type of louse.

- **Head lice** live in the hair of the head and feed on the scalp.
- **Body lice** do live in the seams of infrequently changed and washed clothes. They are on the skin only long enough to feed.
- **Pubic or crab lice** are usually found on the pubic hairs, but can also occur on facial hair (including eye lashes and eye brows), chests, armpits and abdomens.

Who gets pediculosis?

Anyone, regardless of age, race, sex, or standards of personal hygiene, can become infested through contact with an infested person.

How is pediculosis transmitted?

Head lice are most commonly transferred by direct hair-to-hair contact with an infested person. Transmission by contact with personal belongings, such as combs, hair brushes, and hats, is uncommon. *Lice do not jump or fly!*

Body lice are transmitted from person to person on shared clothing and/or bedding.

Pubic lice are most commonly transmitted by direct skin-to-skin contact, usually during sexual contact. Other routes are possible, but less likely.

Head, body, and pubic lice infest only humans; they do not come from other animals and cannot be contracted from dogs, cats, birds, etc. Animal lice can crawl onto humans and feed, but they cannot reproduce and will eventually die.

What are the symptoms of pediculosis?

Head Lice: Itching of the infested area is the most common symptom. Frequent scratching occurs as a result, often breaking the skin and leading to secondary bacterial infections. A tickling sensation in the hair or sensation of something moving, irritability or sleeplessness, and sores on the head caused by scratching are other potential symptoms of head lice. The back of the head and behind the ears are the places most favored by head lice, both for feeding and laying their eggs, however lice and nits can be found anywhere on the head.

Pubic Lice: Genital itching, accompanied by slate-blue marks where the lice have fed, is characteristic of pubic lice.

Body lice: Intense itching and rash caused by an allergic reaction to the louse bites are common symptoms of body lice infestation. When body lice infestation has been present for a long time, heavily bitten areas of the skin can become thickened and discolored, particularly around the midsection of the body (waist, groin, upper thighs).

How soon do symptoms occur?

Itching begins a few days to several weeks after infestation. Head lice infestations can be asymptomatic, particularly with a first infestation or when an infestation is light.

For how long can a person spread pediculosis?

Lice can be spread as long as live lice are present and until all lice and eggs are killed.

What is the treatment for pediculosis?

Treatment for head lice is recommended for persons diagnosed with an active infestation. All household members and other close contacts should be checked; those persons with evidence of an active infestation should be treated. Some experts believe prophylactic treatment is prudent for persons who share the same bed with actively-infested individuals. All infested persons (household members and close contacts) and their bedmates should be treated at the same time.

Retreatment of head lice usually is recommended because no approved pediculicide is completely ovicidal. To be most effective, retreatment should occur after all eggs have hatched but before new eggs are produced. The retreatment schedule can vary depending on whether the pediculicide used is ovicidal (whether it can kill lice eggs).

When treating head lice, supplemental measures can be combined with recommended medicine (pharmacologic treatment); however, such additional (non-pharmacologic) measures generally are not required to eliminate a head lice infestation. For example, hats, scarves, pillow cases, bedding, clothing, and towels worn or used by the infested person in the 2-day period just before treatment is started can be machine washed and dried using the hot water and hot air cycles because lice and eggs are killed by exposure for 5 minutes to temperatures greater than 53.5°C (128.3°F).

It is not necessary or recommended to spray, fumigate, or otherwise chemically treat the home, school or child care center for lice.

What can be done to prevent the spread of pediculosis?

Head Lice: Household and other close contacts should be examined and treated if infested. Bedmates of infested people should be treated prophylactically at the same time as the infested household member and contacts. Prophylactic treatment of other non-infested people is not recommended. Children should not be sent home early from school because of head lice. Parents of infested children (i.e. with at least one crawling head louse) should be notified and informed that their child may return to school after treatment with an effective pediculicide. **This should not result in prolonged absenteeism. Treatment can be accomplished overnight, allowing readmission the following day.** "No-nit" policies requiring that children be free of nits before they return to a child care facility or school have not been effective in controlling head lice transmission and are not recommended.

Body Lice: The most important factor in the control of body lice infestation is the ability to bathe, and change and wash clothing. Close contacts should be examined and treated appropriately; clothing and bedding should be laundered. Care should be taken to avoid extensive contact with infested clothing and bedding in the process of accomplishing this task. Parents of infested children (i.e. with at least one crawling body louse) should be notified and informed that their child may return to school 24 hours after treatment with an effective pediculicide.

For more information, contact your local health department or the Ohio Department of Health (ODH) Outbreak Response and Bioterrorism Investigation Team (ORBIT) at 614-995-5599.