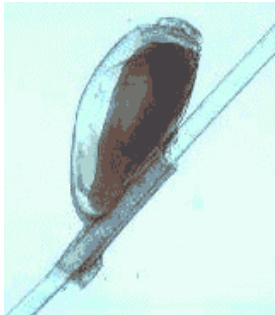


GEORGIA HEAD LICE MANUAL



Georgia Head Lice Manual

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INTRODUCTION

Several species of insects and related pests feed on people. These pests are called ectoparasites when they feed externally, taking blood from their host. In addition to the irritation caused by their bites, some ectoparasites such as fleas, ticks, and lice may also transmit serious disease-producing organisms.

Lice are parasites of warm-blooded animals, including man. The three species of lice that parasitize humans are the head louse, body louse, and pubic (crab) louse. All three suck blood and cause considerable itching when they feed or crawl on the body. The body louse is also important in the transmission of human diseases, most notably epidemic typhus. Throughout time millions of persons have died from louse-borne typhus, although in the United States, the disease has not been present for many years. Louse infestation can also lead to pediculosis, which is scarred, hardened, and pigmented skin resulting from continuous scratching of louse bites. All three kinds of human lice can cause pediculosis.

Lice associated with humans spend virtually their entire life on the host. Head lice are the type of louse most often encountered and almost always occur on the head. Head lice (*Pediculus humanus capitis*) are small (1/12 inch or about the size of a sesame seed), and white or grayish. Lice DO NOT jump. However, they move quickly and avoid light, sometimes making them difficult to see. Diagnosis of head lice infestations is most often made by the presence of the nits rather than lice. Nits are tiny, yellowish-white oval eggs attached directly to the hairs of the scalp. They are often mistaken for dandruff or residues of shampoo, but will not wash off or blow away. Body lice resemble head lice, but prefer to live in clothing except when they crawl onto the body to feed. Outbreaks of body lice are usually associated with large numbers of people living in close quarters under poor sanitation. Transfer of body lice can occur from shared bedding or clothing. Pubic (crab) lice usually infest the pubic area, but also may be found on other hairy areas of the body. Transfer of crab lice between individuals usually requires intimate personal contact because the lice cannot survive longer than 24 hours off the host.

Although head lice feed on blood and are relatives of body lice - the insects that transmit typhus and other bacterial diseases - head lice are not known to transmit any human pathogens. Skin irritation at the feeding site, secondary bacterial infections from scratching, and the psychological "trauma" of the infestations are the chief human health concerns associated with head lice.

The purpose of this manual is to provide schools, local health departments, healthcare facilities, and other group settings a comprehensive guide to identify, treat, manage, and prevent head lice infestations. This manual was designed to serve as a universal guide providing technical information about head lice as well as a quick reference.

Medical Impact



Many families with young children have had at least one encounter with the head louse. Head lice are equal opportunity parasites; they do not respect socio-economic class distinctions. Their presence does not connote a lack of hygiene or sanitation practiced by their host. Head lice can infest people of all ages, but children are prone to infestations because of their habit of playing in close contact, sharing hats, headphones, combs and brushes, sleeping bags, stuffed animals, and clothing. Contact is the key, because LICE DO NOT JUMP. The problem of head lice can be so rampant among preschool and school-aged children that

often schools must work in conjunction with many families to control an infestation. An individual family may be able to control head lice at home, but the child can be re-infested when he/she comes in contact with an untreated, infested child.

According to the Centers for Disease Control and Prevention (CDC), anyone who comes in close contact with someone who already has head lice is at greatest risk for infestation. Preschool and elementary-age children (between ages 3 and 11) and their families are most often infested. Girls get head lice more often than boys and women more often than men. In the United States, African-Americans are less likely to get head lice, although this will depend on hair type.

A very important message to take from this manual is that personal hygiene or cleanliness in the home or school has nothing to do with becoming infested with head lice. Unfortunately, children may be ostracized and/or ridiculed when it is found that they are infested with head lice. Parents may be angered or frightened when a head lice case is found in their child's school/home. Anxiety over head lice can also lead to inappropriate treatments that pose real and significant health hazards to the child and his or her household. With increased education efforts it is hoped that the stigma of head lice can be eliminated and the public's unnecessary fears allayed.

Biology

General Introduction

Human head lice (Figure 1) are minute, wingless insects that are obligate ectoparasites (parasites living outside the body of the host). They are small in size, about 1 - 5 mm or 1/32 to 3/16 of an inch in length, and either light gray or dark colored in appearance, the latter due to ingested blood (Figure 2). They are flattened dorso-ventrally or top to bottom (Figure 3) and have six jointed legs with specially adapted claws for holding onto hair. They can move about readily from hair to hair, but are most adept at clinging to prevent dislodgement. LICE DO NOT JUMP. They survive by piercing the skin to feed on blood and are almost exclusively associated with hair on the neck and scalp.

Head lice are members of a group of insects (Pthiraptera) that are ectoparasites of birds or mammals. Head lice belong to a particular subgroup of these insects known as the sucking lice because of their feeding mode (Figure 2). They are closely related to body lice, commonly known as "cooties", and are in the family Pediculidae. Pediculidae have been associated with humans since antiquity. Most experts consider the human head louse and human body louse to be variants of the same species (*Pediculus humanus*) that segregate by habitat on the host. Lice found on humans will not survive on other animal hosts and vice versa.

Feeding

The head louse feeds by using rasping teeth to penetrate scalp skin at the base of a hair or behind the ears. The louse then inserts its retractable proboscis into a blood vessel, injects anticoagulants, and feeds, much like a mosquito. This feeding activity can be a source of irritation and leads to the itching/scratching characteristic of the infestation. The louse can only subsist on human blood and appears to require internal symbiotic bacteria to compensate for nutritional deficiencies in the blood meal. A louse can ingest several blood meals per day, interrupted by resting/digestion periods between feedings.

Life Cycle

Eggs are attached to hairs (Figure 4) individually by the female louse and are commonly known as "nits." A nit adheres to hairs tenaciously due to adhesive substances secreted by the female. This nit "glue" is very resistant to mechanical and chemical dislodgment.

Eggs hatch (Figure 5) in 8 - 11 days under normal conditions into a **nymphal** stage (Figure 6) that is very much like a miniature adult. It will crawl and seek a place to feed immediately. There are 3 nymphal stages punctuated by molting (the shedding of exoskeleton or "skin"). The nymphal stages last about 7 - 10 days.

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The final molt leads to an **adult** stage (Figure 7) where body growth stops and sexual maturation occurs. There are separate sexes in head lice and females must mate and be fertilized in order to produce viable eggs. This needs only to occur once. A mated female can continue to produce eggs for the duration of her life, which is about 30 days. She can lay 3 - 4 eggs daily during this period.

Transmission

It is important to note that head lice are not long-distance travelers, and they are poorly adapted to life away from the host. Although adept at moving from hair to hair, they cannot jump nor can they crawl great distances (from the floor to someone's head, for example) to re-establish an infestation. Head lice move from person to person primarily by direct hair-to-hair contact, and less frequently through shared combs, brushes, hats, etc. Head lice may also be transmitted through shared bedding (e.g., pillow cases). Transmission usually involves the active stages (nymph or adult) of the louse and requires the transfer of at least one viable, fertilized female or one of each sex for re-infestation.

Active stages cannot survive for more than a few days away from the host. A nymph or adult louse that falls from the host will perish within a few days under the most optimal conditions (low temperature and high humidity). **Under normal conditions, the survival time is most likely measured in hours.** This is because the louse is very susceptible to dehydration and will rapidly starve if removed from a blood source. Eggs can survive longer off-host periods (a week or more), but the hatched nymph must come in contact with human head hair almost immediately or it will perish. Louse eggs also do not hatch at normal room temperatures; they require the higher temperatures associated with mammalian bodies. Lice are very host-specific, and will not survive/proliferate on pets - you cannot get lice from your dog or cat. **All of this suggests that efforts to control head lice should be concentrated on removing/killing lice on the host.**

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Figure 1.



Figure 2.



Figure 3.



Figure 4.

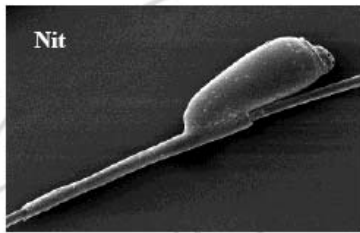


Figure 5.

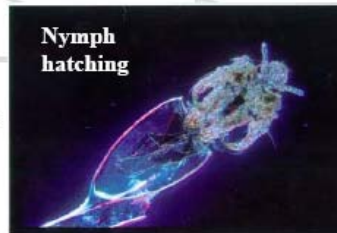


Figure 7.

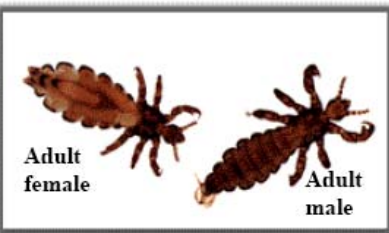


Figure 6.

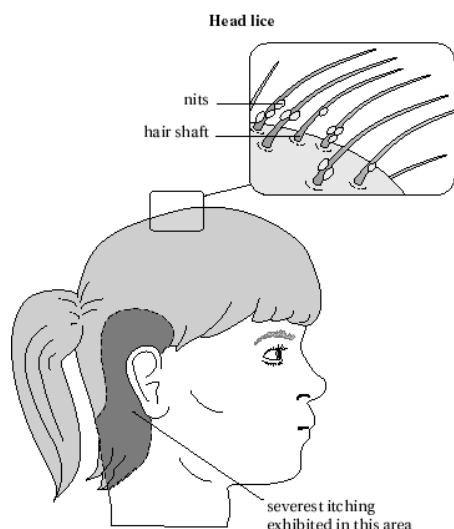


Identification and Diagnosis of Head Lice

Please remember, it is important to preserve the dignity and privacy of students when screening for head lice in school.

Some helpful supplies for use when identifying head lice:

- Disposable gloves
- Bright light or sunlight to closely inspect the hair
- Magnifying glass
- Comb or brush (should be disinfected or disposed of after being used for this purpose)



Actual size of the three lice forms compared to a penny (Photo credit: CDC)

Where to Look for Head Lice

Head lice are best identified by inspecting the hair and scalp for live lice or nits (eggs attached to the hair shaft). An experienced examiner may be needed to confirm a diagnosis. The standard for identifying head lice is finding a live louse on the head. Lice and nits are most often found at the nape of the neck, and above and behind the ears. Carefully part the hair using the applicator stick or tongue depressor and examine the hair and scalp for nits or crawling lice. Begin by inspecting the nape of the neck and the area behind the ears. If nothing is seen in these areas, continue to inspect the rest of the head to ensure the absence of lice and nits.

Adults and nymphs are difficult to see because they are small and often appear to be nearly the same color as the host's hair. Most recently laid nits will be opaque, white, shiny, and located on a hair shaft within one-quarter inch of the scalp, and generally develop a dark eyespot within 48 hours of being laid. The cap or operculum (a flap that serves as a cover of the nit case) will be intact, and an embryo may be observed by microscope. Dandruff, hair casts, globules of hair spray, and scalp conditions such as psoriasis or eczema may easily be mistaken for nits. Hair debris is easily detached

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or loosened from the hair shaft. Nits are firmly attached to the hair and are not easily removed. Empty nit cases are more visible and are dull yellow in color. Nits are usually found one-quarter inch or more from the scalp due to hair growth following the initial attachment. By the time the hair has grown sufficiently for the egg case to be more than one-half inch from the scalp, the egg has either hatched or is nonviable.

Questions about identifying lice or nits should be referred to a health care professional or entomologist. Live lice may be submitted for identification in a clean/dry container or on a piece of transparent tape if there are questions about the identification of lice or nits. Pieces of hair with possible nits attached may be snipped and submitted for identification in the same manner. Contact the public health laboratory (P: 404-327-7900, F: 404-327-7919, e-mail: gdphinfo@dhr.state.ga.us, [Laboratory Services Manual](#)) for further instructions on specimen submission.

Nits or lice in the eyelashes or eyebrows indicate possible infestation with other species of lice (Figure 8). Specimens should be submitted to a laboratory for full identification and the case referred to a private physician or local health department, as a different form of treatment may be required.

Examiners should be careful to prevent transmission to themselves or to others being examined. Disposable gloves may be worn, and wooded applicator sticks may be used to separate the hair. Both should be disposed of after each examination.

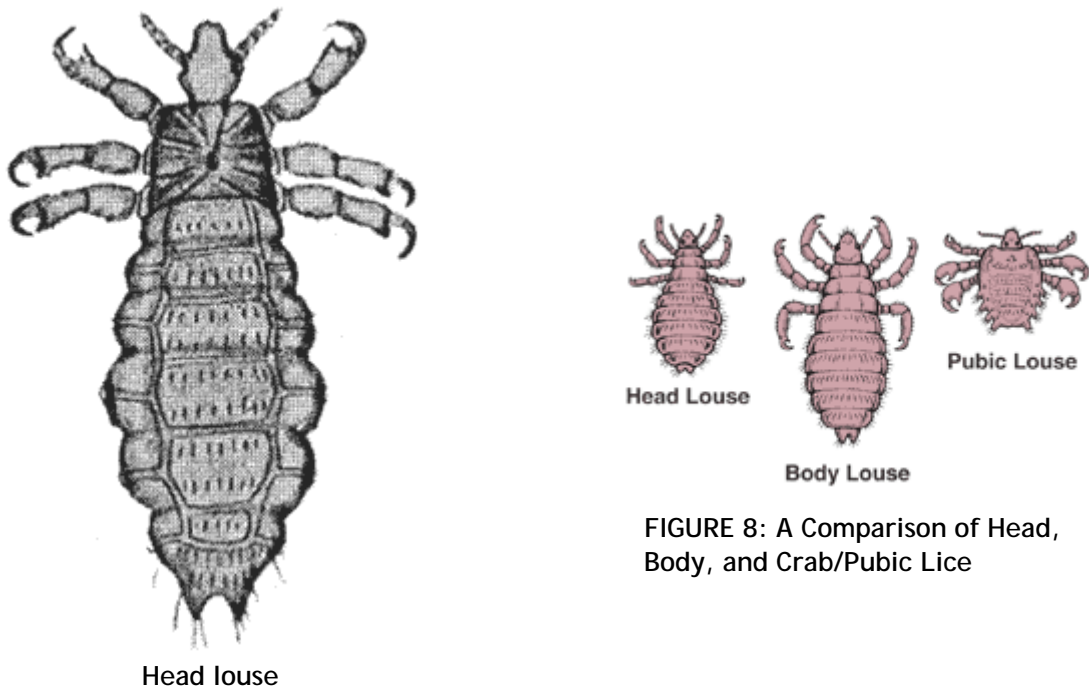


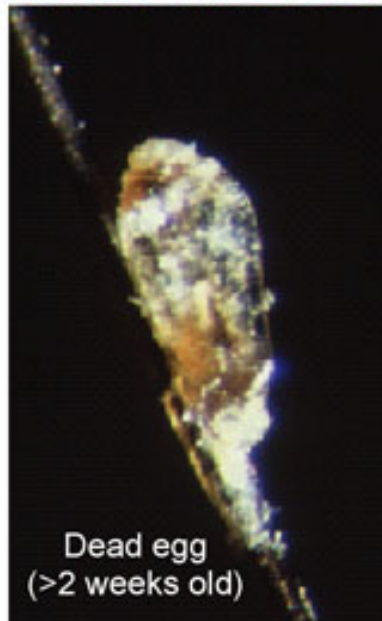
FIGURE 8: A Comparison of Head, Body, and Crab/Pubic Lice

Images to assist in the identification of head lice and their eggs.

<http://www.hsph.harvard.edu/headlice.html>



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Treatment

Treatment should be considered only if active head lice or viable eggs are observed. Once a confirmed diagnosis of head lice infestation is made there are several treatment options to choose from. Methods include mechanical removal, treatment with pediculicides, and topical treatment with alternative products. Adjunctive activities include the elimination of lice and nits from the environment as well as from any other contacts who also have head lice, regular reinspections for lice and nits after treatment, and, if indicated, the reapplication of a pediculicide 7 to 10 days after the initial treatment.

Mechanical Removal

Mechanically removing lice and nits, using lice or nit combs, can be effective but time-consuming. A specialized nit comb is an important tool for nit-picking, as a regular hair comb may not remove head lice and nits.

The overall effectiveness of any comb depends on its composition (metal or plastic) and construction (length and spacing) of the comb teeth, the texture of the hair to be combed, combing technique, and the time and care expended in the effort. A variety of nit combs are packaged with head-lice products, and others are sold separately (available at some pharmacies). However, many of these are ineffective. Plastic combs are generally not useful because they are so flexible that the teeth separate, and nits and head lice are bypassed as the comb is dragged through the hair. With a short-toothed comb, it is difficult to completely comb through most types of hair. The best nit combs have closely spaced, metal teeth that are about 1-¹/₂ inches long (i.e., Acu-Med[®] lice comb, Hair Clean[®] 1-2-3 nit comb, LiceMeister[®] nit comb). Electronic combs may be useful for detection (if vision is limited), since they emit a sound when a live louse is present.



Examples of Head Lice Combs

The parent/guardian should first make sure a standard comb moves through the hair without difficulty before attempting to use a fine-tooth lice comb. Combing may be easier if the person's hair is wet or has conditioner on it. Clean the louse comb frequently to remove any caught lice or eggs. It may require several hours each night for several nights to successfully treat the problem. An entertaining video may help

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keep the child occupied during this exercise. Sit behind the child and use a bright light (and magnification if available) to inspect and comb through the hair, one small section at a time. It may also be necessary to actually pick nits from the hair, especially if they are not numerous. Nits can be removed using the comb, fingernails, or by cutting the strands of hair. Combing should be repeated daily until no lice are seen and then continued for three weeks. Studies have shown that this approach alone, when carried out by parents, eliminated head lice infestations in 38% of children.

There are many medicated products (pediculicides) available for treatment of head lice. Most are available over the counter, but some are by prescription only and may be reimbursable through insurance. **All products must be used strictly in accordance with label directions to ensure effectiveness and prevent adverse reactions from overuse or misuse.** When used properly, their effectiveness in eliminating head lice infestations has been reported to be 80% to 95%. However, there are reports of localized resistance to all of these products. Remember, these products are not preventive and should only be used if lice are present.

Over-the-Counter Methods

- Permethrin (1%) - Manufactured as a synthetic pyrethroid, permethrin 1% (Nix) is currently the recommended treatment of choice by the American Academy of Pediatrics (AAP) for newly diagnosed cases of head lice. Permethrin has lower toxicity than pyrethrins and does not cause allergic reactions in individuals with plant allergies. It can be used in children as young as two months. The product is a cream rinse applied to hair that is first shampooed with a non-conditioning shampoo and then towel dried. It is left on for 10 minutes and then rinsed off. It leaves a residue on the hair that is designed to kill nymphs emerging from the 20% to 30% of eggs not killed with the shampoo application. In order not to remove the residue, the hair should be rinsed with plain water after application. It is suggested that the application be repeated if live lice are seen 7 to 10 days later. Many experts recommend routine re-treatment. However, never retreat before seven days after the first treatment.
- Pyrethrins plus Piperonyl Butoxide - Manufactured from natural extracts from the chrysanthemum, pyrethrins plus piperonyl butoxide (RID, A-200, R & C, Pronto, Clear Lice System) is neurotoxic to lice and has extremely low mammalian toxicity. The labels warn against possible allergic reaction in patients that are sensitive to ragweed, but modern extraction techniques minimize the chance of product contamination, and reports of true allergic reactions are rare. However, pyrethrins should be avoided in persons allergic to chrysanthemums or who suffer from asthma. These products are mostly shampoos that are applied to dry hair and left on for 10 minutes before rinsing. All topical pediculicides should be rinsed from the hair over a sink rather than in the shower or bath to limit exposure and with cool rather than hot water to minimize chemical absorption through the scalp. None of these natural

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pyrethrins are totally ovicidal (have the ability to kill a louse through the egg), as newly laid eggs do not have a nervous system for several days; 20% to 30% of the eggs remain viable after treatment. This necessitates a second treatment 7 to 10 days later to kill newly emerged nymphs hatched from eggs that survived the first treatment.

Prescription Methods

- Malathion (0.5%) **** USE WITH EXTREME CAUTION ****
The organophosphate (cholinesterase inhibitor) 0.5% malathion (Ovide) has been reintroduced to the U.S. market and is available by prescription only. The lotion is applied to the hair, left to air dry, and then washed off after 8 to 12 hours. Malathion has high ovicidal activity, but the product should be reapplied if live lice are seen in 7 to 10 days. The major concerns about this product include its high alcohol content, making it highly flammable, (users should be instructed not to use hair dryers or curlers or to smoke during the treatment period) and the risk of severe respiratory depression and other symptoms if accidentally ingested. It should be used with extreme caution and only in cases where resistance to other products is strongly suspected. Safety has not been established for children under 2 years old. As with all pediculicides, this product must be used according to label instructions.
- Lindane (1%) **** USE WITH EXTREME CAUTION ****
Lindane is an organochloride that has central nervous system toxicity in humans if used incorrectly. Several cases of severe seizures in children using lindane have been reported. Lindane is available only by prescription as either a lotion or shampoo that should be left on for no more than 6 minutes with repeated application only if live lice are found after 7-10 days. Gloves should be worn when applying this pediculicide. Lindane can only be obtained in 2 oz single use bottles. As with all pediculicides, this product must be used according to label instructions. Lindane does have ovicidal activity (92% reported by vendor). Resistance has been reported. **Lindane is only used as second line therapy when over-the-counter products are not effective or are contraindicated.**

Topical Reactions

Itching or mild burning of the scalp caused by inflammation of the skin in response to topical therapeutic agents can persist for many days after lice are killed and is not a reason for retreatment. Topical corticosteroids (i.e., hydrocortisone creams) and oral antihistamines (i.e., Benadryl®) may be beneficial for relief of these symptoms. Please consult with the child's physician/pharmacist before starting any topical therapies.

Pediculicide Resistance - None of the current pediculicides are 100% ovicidal, and resistance has been reported with lindane, pyrethrins, and permethrin. This is not unusual as insects can develop resistance to products over time. Resistance will vary

from one community to another. When faced with a persistent case of head lice, one must consider several possible explanations including:

- Misdiagnosis (no active infestation or misidentification)
- Noncompliance (not following treatment protocol)
- Reinfestation (lice re-acquired after treatment)
- Resistance of lice to the pediculicide.

Many cases of suspected resistance represent either misdiagnosis of old nits as active cases or a reinfestation. However, individuals who are chronically infested and have been treated multiple times with pyrethroid shampoos are more likely to have resistant cases.

Although Permethrin 5% lotion has been tried for suspected resistant cases, it is unlikely that an increased concentration or prolonged application time would be effective in cases of true resistance to Permethrin 1%. Studies have shown that resistance to permethrin is not dose dependent. Where resistance is suspected, treatment with a different class of pediculicide or non-chemical treatment must be considered.

Nit Removal after Treatment with a Pediculicide - Because none of the pediculicides are 100% ovicidal, manual removal of nits after treatment with any product is recommended. A fine-toothed nit comb should be used.

Alternative Methods

Over-the-counter pediculicides kill adult and nymphal lice, but rarely kill the eggs. Combing the hair to loosen and remove nits is recommended to fully eradicate an infestation. The combing method is the most time-intensive, but for parents who wish to avoid chemical treatments, it is most effective. Several products are marketed as alternative methods of treatment. A number of shampoos and rinses contain herbs, oils, or enzymes believed to aid in lice removal. The majority of alternative products are referred to as being suffocants or enzymes.

- Suffocants (i.e., petroleum jelly, mayonnaise, or oil-based products) can obstruct the respiratory spiracles of active lice, and potentially block the holes in the operculum of the eggs thereby suffocating the louse. Apply 30g to 40g of standard petroleum jelly to the hair and massage it in. Cover with a shower cap, and leave on for at least 8 hours. The suffocant can then be used as a lubricant to aid in nit removal by combing. Diligent shampooing is usually necessary for at least the next 7 to 10 days to remove the residue. NOTE: This method does not always work well and can be very messy. Take special care with children "tasting" the mayonnaise, as this may cause illness since the mayonnaise will have been sitting at room temperature.
- Treatment products containing enzymes claim to dissolve or soften the glue that attaches the nit to the hair shaft, thereby providing easier removal of lice

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

Oral Treatments

Promising oral treatment methods are currently being researched, however, the Federal Drug Administration (FDA) has not approved any oral drugs for the treatment of head lice infestations.

Note: Flammable or toxic substances, such as gasoline or kerosene, should never be used. Products intended for animal use should not be used to treat head lice in humans. Short hair is more readily searched for lice and eggs but it does not make one invulnerable to infestation. Although shaving the head completely will remove all lice and eggs, this method is not routinely recommended for aesthetic reasons and the potential negative psychological impact on the child.

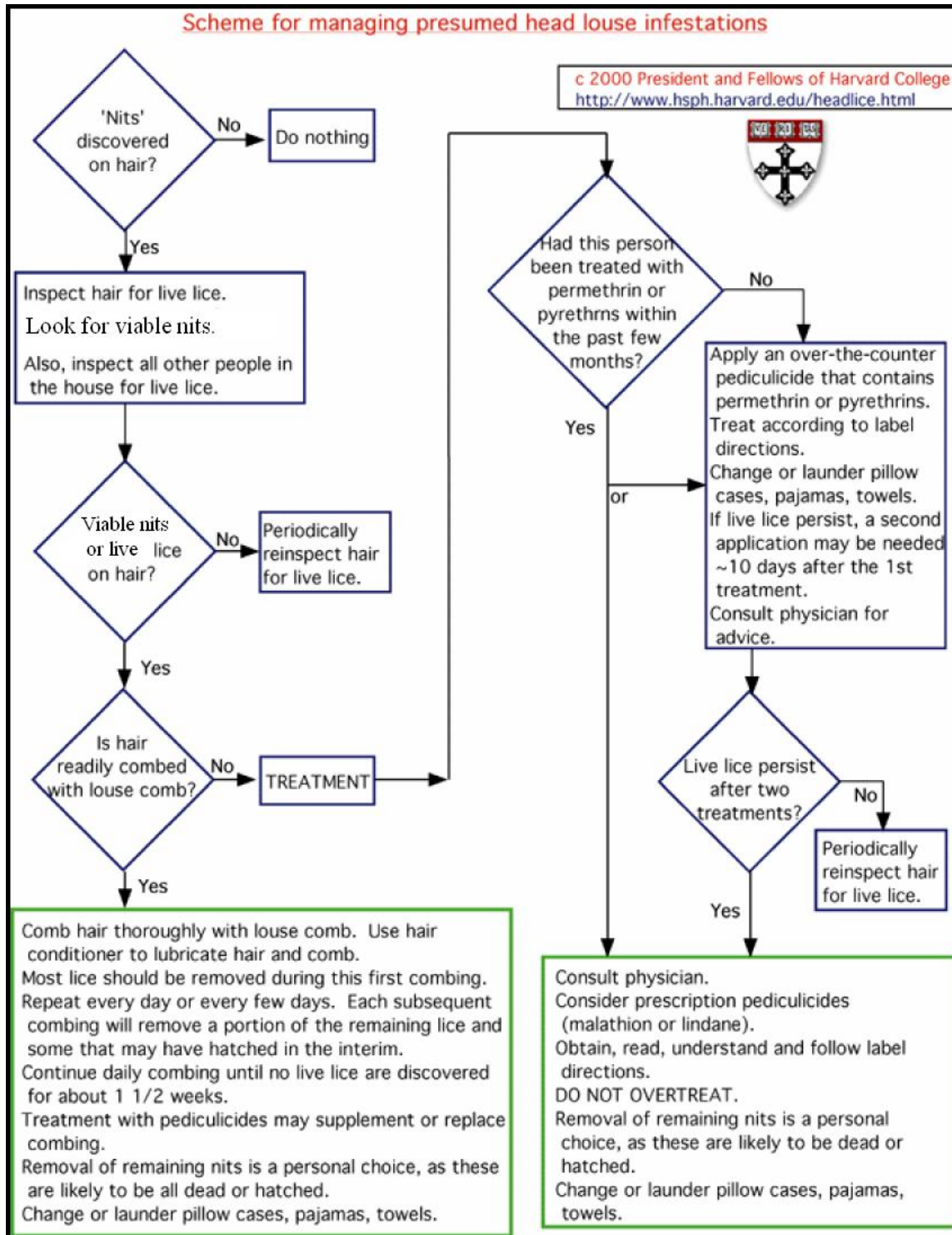
Treatment of the Environment (AT HOME)

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

- Launder any personal items that could be infested with head lice. This includes: clothing, bedding, towels, cloth toys, etc. Items should be washed for at least 10 minutes at a water temperature of 130-140°F. Dry items on high heat for at least 30 minutes. For items that cannot be washed, i.e., stuffed animals, pillows, dry-clean only quilts, seal in a plastic bag and store for 14 days at room temperature or 24 hours in below freezing temperatures.
- Vacuum. This includes: bare mattresses, carpet, floors, stuffed animals, coat collars, hats, couches, chairs, and car upholstery. There is no need to discard the vacuum bag after cleaning, except for aesthetic purposes. Head lice cannot survive without a blood meal. If a vacuum is not available and cannot be borrowed, sweep well, brush upholstery with a stiff brush, and shake out rugs and other items.
- Inspect hairbrushes, combs, hair ties, and barrettes. For washable accessories, wash and dry (on high heat) for at least 30 minutes. Boil combs, brushes and barrettes in water hotter than 130°F. If items cannot be exposed to high heat, soak them in Lysol®, rubbing alcohol or a pediculicide for one hour.

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- Spraying or fogging a home with insecticides or pediculicides is **NOT RECOMMENDED**, and may be harmful if used in a poorly ventilated area.



School Head Lice Prevention and Control Policy

Currently, there is no scientific evidence demonstrating that enforced exclusion policies are effective for reducing head lice transmission. Although the lice policy is ultimately up to the school administration, school officials are urged to consider these recommendations. A student should not miss more than one or two days from school because of head lice. **Documents to support these recommendations can be found at the end of this manual.**

POLICY for SCHOOLS

When a member of school staff suspects a child is infested with head lice, the following procedures should be followed:

- The child should be restricted from activities involving close contact (i.e., hugging) or sharing personal items (i.e., hats, clothing, brushes) with other children.
- The school/facility must be notified, and the parents must be contacted (verbal communication is preferred). **Immediate removal of the child is unnecessary.** If the child has lice, they probably have been infested for weeks and prompt removal of the child could lead to embarrassment and ridicule. The child can be sent home at the end of the day. Children should be allowed to ride the school bus home. Transmission via school bus seats is not likely because of the biology of head lice.
- A letter should be sent home notifying classmates' parents that a case of head lice is suspected and asking them to check all of their children for head lice. The school should also provide parents with a copy of an information sheet on head lice infestation and treatment options.

Roles and Responsibilities

Parents have the ultimate responsibility for their children. This includes:

- Assisting in the prevention and management of head lice cases through regular checks of their children's hair and
- Starting immediate treatment when head lice are detected.

School communities have responsibility for:

- Developing school procedures to support prevention and control. Policies and procedures should include the following elements:
 - Individual school lice policy
 - Enforcement procedures for children with reoccurring infestations or repeat violators of the school's lice policy
- Designating an individual to evaluate chronic cases within the school and/or school district that will work together with their local health department to achieve compliance with the school's lice policy.
- Disseminating current information on head lice.
- Holding educational sessions for parents and children.

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- Alerting parents when cases have been identified and urging regular head checks at home - mass screenings are no longer considered necessary.
- If conflict situations arise, the infested student's parents should be advised to talk with a doctor about their concerns and treatment options.

Local Health Departments/Agencies have responsibility for:

- Providing technical support and knowledge to schools. This may include educational sessions for school staff about:
 - Screening techniques,
 - Identification of head lice and
 - Treatment options.
- Disseminating the most current information on head lice recommendations and control measures.

The Division of Public Health Nurse protocols for Registered Professional Nurses are as follows:

NURSE PROTOCOL FOR *PEDICULOSIS CAPITIS* (Head Lice)

DEFINITION

Pediculosis is the infestation of the head by *Pediculus humanus capitis*. It is most common in school-age white females.

ETIOLOGY

The head louse attaches to hair. Females lay eggs embedded in water-insoluble glue that adheres the eggs to the hair shaft. Eggs hatch after 4 to 14 days. The lice ingest blood every few hours and can only survive 1 to 2 days away from a blood supply. Transmission occurs by direct contact, such as sharing hairbrushes, caps or clothing, or through close living quarters.

SUBJECTIVE

- Itching.
- Rash.
- Nits or adult lice seen.
- May give history of exposure to lice.

OBJECTIVE

- Identification of lice or nits attached to head hair, eyebrows or eyelashes. Adult lice are hard to find, usually <10/patient. With recent infestation, eggs are a creamy-yellow color. Empty eggshells are white. Common sites are the back of the head and behind the ears. Nits are firmly attached to the hairs and cannot be moved up and down the hair shaft like hair casts, scales and dandruff.
- Small red papules or secondary excoriations.
- Occipital or cervical lymphadenopathy may be present.

ASSESSMENT

Pediculosis capitis (Head lice)

PLAN

THERAPEUTIC-PHARMACOLOGIC

- Permethrin 1% cream rinse (nonprescription NIX). Do not use NIX on pregnant females, infants less than 2 months old, or on patients who are allergic to synthetic pyrethroid or pyrethrin, any of its components or chrysanthemums.
 1. Apply NIX to shampooed, rinsed and completely dried hair and wash off after 10 minutes. (Do not apply to damp hair.)
 2. Comb with a fine-tooth comb to remove nits and re-evaluate scalp for secondary infection.
 3. Repeat application in ≥ 7 days if live lice are seen. Re-treatment for recurrences is required in less than 1% of patients.
 4. Treatment with NIX may temporarily exacerbate pruritus, erythema, or edema. Clients may experience mild transient burning/stinging, tingling, numbness, or scalp discomfort. If any reaction persists, refer client to a private care provider.
 5. To prevent accidental ingestion, NIX should be stored in a locked area out of reach of children.

OR

- Pyrethrins with piperonyl butoxide (e.g., nonprescription A-200, RID, Clear, Pronto)
 1. Apply enough solution to completely wet hair, add water to lather, wait 10 minutes and rinse thoroughly with warm water.
 2. Use fine-toothed comb to remove lice and eggs from hair, shampoo hair to restore body and luster.
 3. Repeat application in 7-10 days.
- For infestation of the eyelids, apply petrolatum ointment to eyelid margins BID for 8-10 days, followed by removal of nits.
- Mild topical antipruritic/anti-inflammatory cream or ointment may be obtained over-the-counter for itching.
- Evidence of secondary infection requires systemic antibiotic treatment. The patient should be assessed for impetigo treatment or physician referral.

NON-PHARMACOLOGIC

- As an alternative to pediculocides, as prevention following exposure to head lice, or when previous treatments appear to have been unsuccessful:
 1. To dry hair, apply a generous amount of olive oil, vaseline, mayonnaise, any vegetable oil, or baby oil to the scalp. Massage well to distribute over all the hair.

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2. Cover the head with a shower cap and leave the oil on overnight, or at least 8 hours.
3. In the morning, or after 8 hours, comb the hair with a regular comb to remove any tangles. Comb with a nit comb through very small sections of hair. Be sure to wipe the comb often.
4. When all nits have been removed, shampoo hair. A second application of shampoo may be necessary to remove all of the oil.
5. Dry the hair as usual. Blow dryer temperatures can kill lice.
6. Check carefully for nits by parting off small sections of hair and looking under a very bright light.
7. If done properly, there is no need to repeat. All lice should be suffocated, and all nits removed.

OR

- Remove nits with comb or tweezers.
 1. To aid in removal, soak hair with 1:1 white vinegar - water solution.
 2. Cover the hair with a warm moist towel for 30-60 minutes, then comb.
 3. A product called "Step 2" which contains formic acid may be used to facilitate nit removal. Formic acid dissolves the cement that attaches the nit to the hair. It is applied to the hair after the pediculicide, left on for 10 minutes, and then rinsed.
- Adequate washing or dry-cleaning of clothes and linens used during the previous few days. Any item that cannot be washed or dry-cleaned should be stored in a sealed plastic bag for two weeks.
- Soak brushes, combs and hair accessories in hot water with pediculicide shampoo or alcohol for an hour.
- Vacuum mattresses, pillows, upholstered furniture, and carpeting. Discard the vacuum cleaner bag. Fumigation of the home is not recommended.

CLIENT EDUCATION/COUNSELING

- Contacts should be treated only if infestation is found.
- Teach how to apply prescribed medication and decontaminate clothing and other articles.
- Flush the eyes with water immediately if pediculicide gets in the eyes.
- Avoid unnecessary re-treatment because of the toxic hazard.
- Children can return to school following initial treatment.
- Itching may persist for 1-2 weeks even after adequate treatment, and should not be considered a reason for reapplication of medication.

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- Educate about the person-to-person mode of transmission, and procedures to prevent transmission.
 1. Do not share combs, brushes or head gear/coverings with other persons.
 2. Hang coats where they do not touch those of other persons.
- Assure that head lice infestation is a common problem in the school-age population and affects children of all socio-economic groups.
- Instruct caregiver that child may return to daycare or school the next day after first treatment for head lice. It is not recommended that child be excluded from school based on the presence of nits.

FOLLOW-UP

- Reevaluate in one week if symptoms persist.
- Re-treatment may occasionally be necessary. Use an alternate regimen if not responding to treatment.

REFERRAL

Consult with physician regarding any question of management.

SCHOOL ASSISTANCE

What are the advantages of a "No-Nit" policy?

Under a no-nit policy, children may not return to school until the school confirms complete removal of all lice and nits. In this way, infested children will not transmit head lice to others. The **Georgia Department of Human Resources Division of Public Health does not recommend a no-nit policy.** However, this decision may need to be made on a case-by-case basis to deal with local situations.

What are the disadvantages of a "No-Nit" policy?

Children are often excluded from school even when they are not at risk to transmit head lice. In a Harvard University study, dandruff, fibers, dirt, scabs, skin cells, knotted hair or other insects are misdiagnosed as head lice 40% of the time! Another study found that most children with nits alone did not become infested with adult lice. These reports indicate that many children are unnecessarily excluded from school under a strict no-nit policy.

What are the components of an effective head lice policy?

- Designate a person (such as a school nurse or principal) to check students when an outbreak occurs. This person must also check infested children daily for 10 days after treatment (manual removal, shampoo, etc.) and re-admission to school. A repeat treatment of the child may be necessary in 7-10 days.
- The designated monitor must be trained to identify head lice and nits. Do not exclude children from school based on the diagnosis of an untrained or

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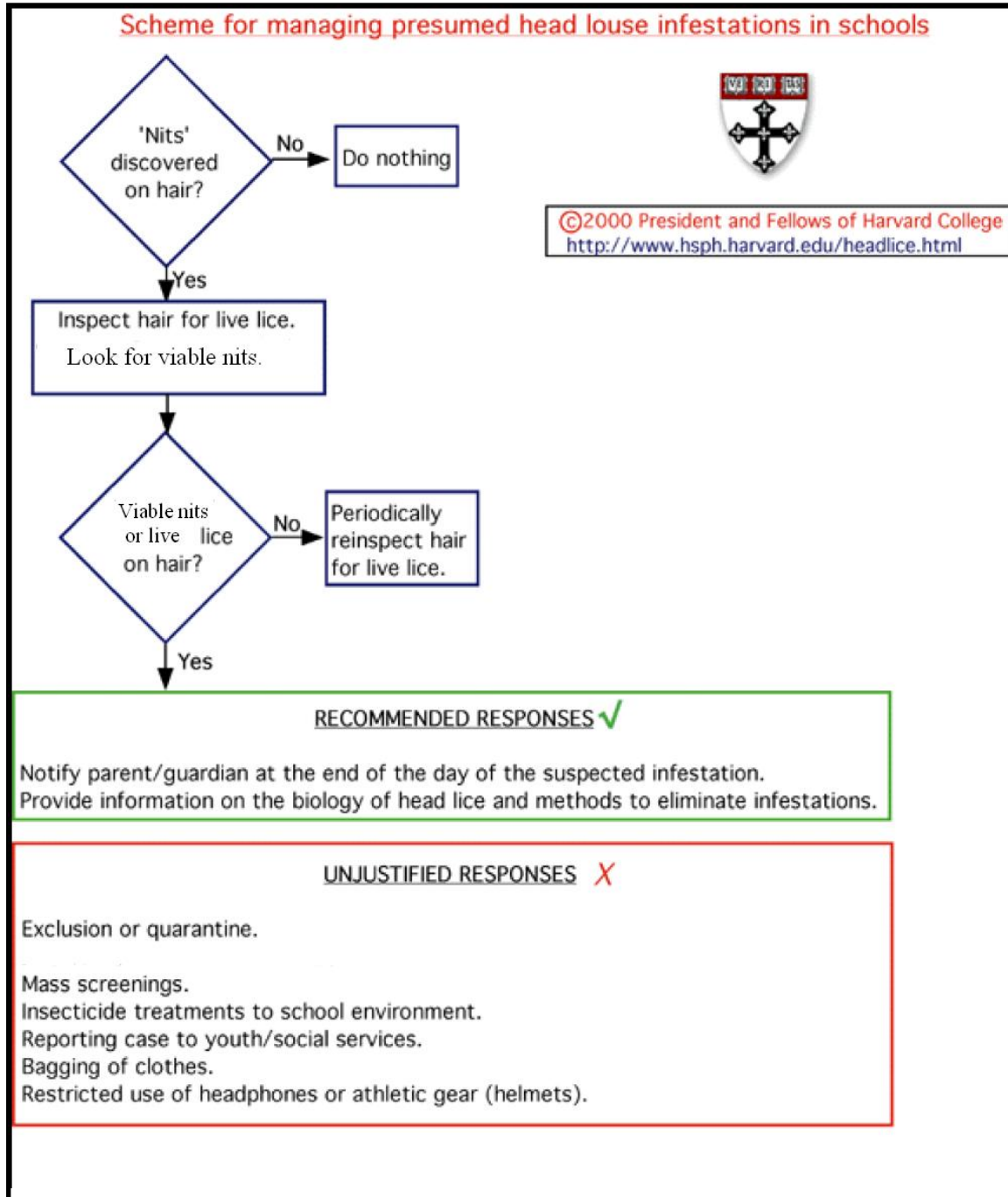
- Educate parents and students about head lice and how to avoid infestation. Emphasize prevention! Distribute the [Parent's Guide to the 'Nitty-Gritty' about Head Lice](#) to concerned parents.
- Be sensitive when dealing with children (and parents of children) that have head lice. Although not dangerous, head lice can be traumatic.
- Base your policy on the presence of live, adult head lice and viable nits. Policies based only on nits will be inconsistent and may unnecessarily exclude children from school.
- In schools where head lice are a constant problem it may be useful to form a head lice task force consisting of parents, administrators, and a health department nurse, to come up with a plan to reduce re-infestations.

Tips for Preventing Transmission

- Teach children not to share combs, brushes, hair accessories, hats, caps, scarves, headphones or any other personal headgear.
- Do not try on other people's hats (even in department stores).
- Teach children to hang coats separately- placing hats and scarves inside coat/jacket sleeves.
- Shared headgear, (i.e., helmets) should be cleaned and disinfected with Lysol® or rubbing alcohol before being issued to other students.
- Encourage parents to check their children regularly for head lice.
- Begin head lice education within the classrooms so that children can understand head lice and what they can do to help prevent the spread of lice.

Tips for Cleaning the School Environment

- Vacuum all floors, rugs, pillows, carpet squares, and upholstered furniture. There is no need to discard the vacuum bag after cleaning.
- Combs and brushes used on an infested individual should be immersed in water hotter than 130°F, Lysol®, rubbing alcohol or a pediculicide for one hour.
- Play clothes, linens, smocks and cloth toys worn or handled by an infested individual within two days before diagnosis should be washed in water hotter than 130°F, or machine dried at the highest heat setting for at least 30 minutes.
- Other articles may be dry cleaned or sealed in a plastic bag for at least 14 days at room temperature or 24 hours below freezing temperatures.
- Pets in the classroom do not need to be treated and cannot maintain or transmit lice.
- It is NOT necessary to hire an exterminator.
- Spraying or fogging schools with insecticides is NOT RECOMMENDED, and may be harmful if used in a poorly ventilated area.



Dealing With Head Lice in Difficult Home Situations

Effective treatment can be difficult and takes perseverance on the part of the parent/guardian and excellent communication and screening on the part of the school. Families should receive education about:

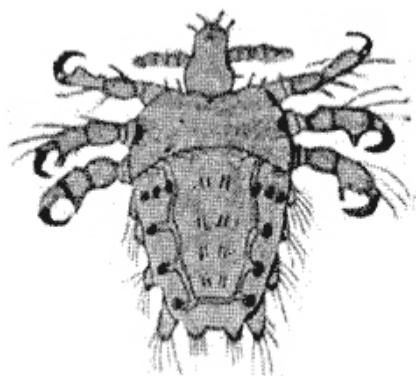
- ❖ Head lice,
- ❖ Methods of treatment,
- ❖ Referral to healthcare provider or public health clinic,
- ❖ How to identify head lice among family members, and
- ❖ How to clean bedding, personal articles, clothing and the home.

Keep in mind that the family's understanding and ability to comply will be affected by factors such as emotional state, literacy level, culture, language/communication skills, previous experience, vision of the caregiver and condition of housing.

Control of head lice infestation is a community problem that requires the involvement of schools, healthcare providers (including pharmacists), families, and local public health authorities. When an active case of head lice is found, the student should remain in the clinic or office until a family member picks her/him up. Then classmates, friends and siblings should be examined as soon as possible. Although mass screenings are no longer recommended, if a substantial number of cases are found, screening the entire school population should be considered. In cases where head lice are becoming problematic, routine screenings at the beginning of the school year, and after extended holidays such as winter and spring breaks may need to be considered. Notification of families prior to screenings provides an opportunity for health education.

Treatment of head lice must include simultaneous attention to the student and his environment. All persons in the household and other close contacts of the student should be examined. Contacts should be treated only if evidence of lice or nits is found. If a child is being cared for in multiple households, it will be necessary to educate family members in each of these households on ways to control head lice. It may be useful to enlist the help of other agencies or local churches to reach these families where need is great.

Pubic Lice
Information for Schools



Crab louse

Pubic (crab) lice are parasitic insects found in the genital area of humans. Infection is common and found worldwide.

Pubic lice are usually spread through sexual contact. Rarely, infestation can be spread through contact with an infested person's bed linens, towels, or clothes. Animals do not get or spread pubic lice. A common misunderstanding is that infestation can be spread by sitting on a toilet seat. This isn't likely, since lice cannot live long away from a warm human body. Also, lice do not have feet designed to walk or hold onto smooth surfaces such as toilet seats.

Pubic lice are generally found in the genital area on pubic hair; but may occasionally be found on other coarse body hair, such as hair on the legs, armpits, mustache, beard, eyebrows, or eyelashes. Infestations of young children are usually on the eyebrows or eyelashes. Lice found on the head are not pubic lice; they are head lice. It is important to be able to distinguish pubic lice and head lice, as pubic lice infestation in a young child or teenager may indicate sexual activity or sexual abuse.

Signs and symptoms of pubic lice include:

- Itching in the genital area
- Visible nits (lice eggs) or crawling lice

Like head lice, pubic lice go through three stages (nit, nymph, adult). The adult pubic louse resembles a miniature crab when viewed through a strong magnifying glass. Pubic lice have six legs, but their two front legs are very large and look like the pincher claws of a crab; this is how they got the nickname "crabs." Pubic lice are tan to grayish-white in color. Females lay nits and are usually larger than males. To live, adult lice must feed on blood. If the louse falls off a person, it dies within 1-2 days.

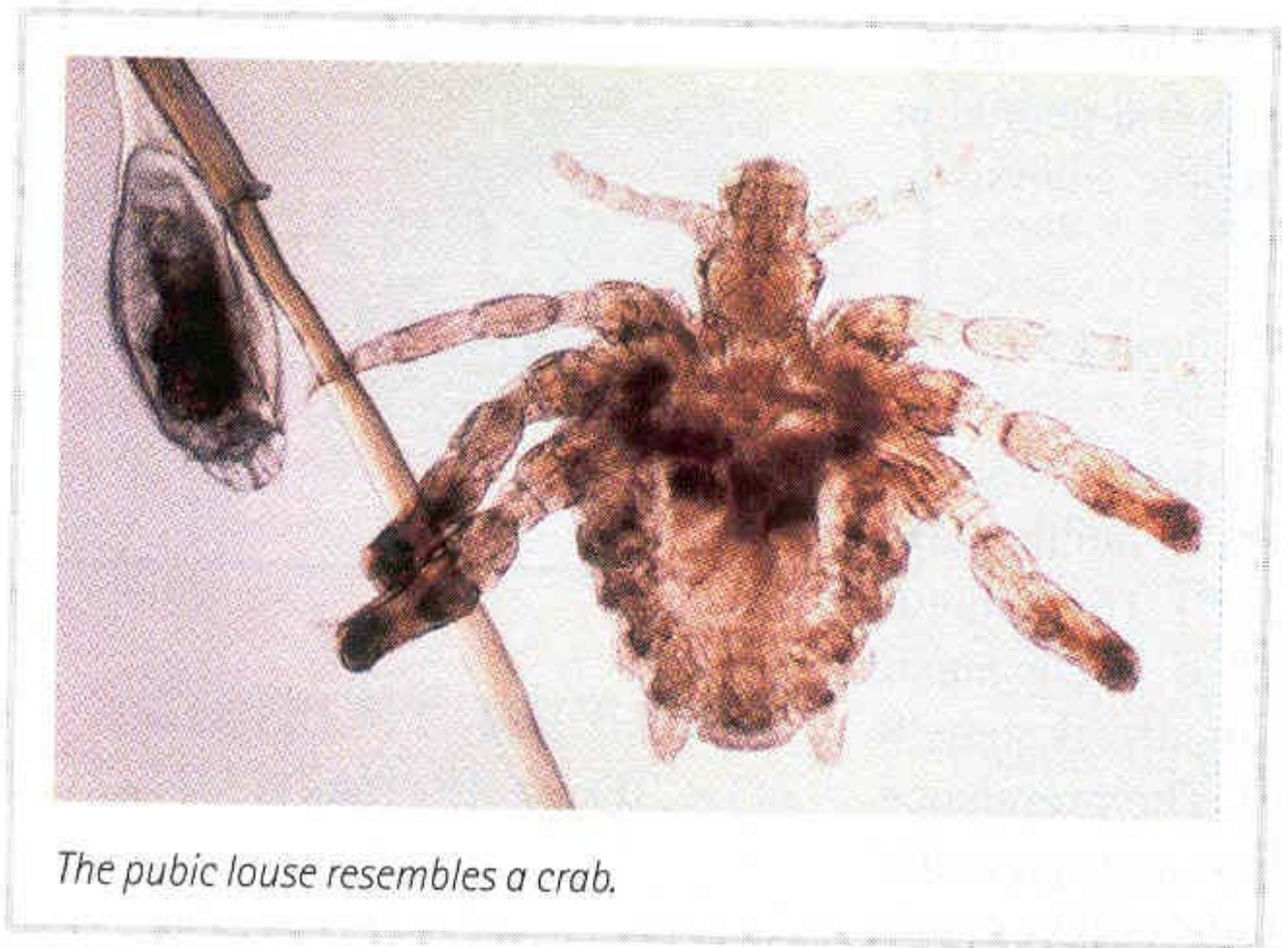
To treat nits and lice found on eyebrows or eyelashes:

- If only a few nits are found, it may be possible to remove live lice and nits with your fingernails or a nit comb.
- If additional treatment is needed for pubic lice nits found on the eyelashes, applying an ophthalmic-grade petrolatum ointment (only available by prescription) to the eyelids twice a day for 10 days is effective. Vaseline* is a kind of petrolatum, but is likely to irritate the eyes if applied.

For treatment of pubic lice in the genital area, a lice-killing shampoo (also called a pediculicide) made of 1% permethrin or pyrethrin is recommended. These products are available without a prescription at your local drug store. Medication is generally

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very effective; apply the medication exactly as directed on the bottle. Because of the possibility of sexual abuse when pubic lice are found on children, it may be advisable to refer such cases to Family and Children Services. Pubic lice infestation in teenagers may denote sexual activity. Careful questioning is important to determine if this is the case; education on the methods of treating pubic lice and on protecting oneself from other sexually-transmitted diseases and unwanted pregnancy should be undertaken.



Information for Parents - If Your Child Has Pubic Lice

Although sexual contact is the most common method of transmission, your child may have become infested by using towels or bedding at a friend's house or even from trying on a bathing suit without wearing underwear. Talk to your child in a non-accusatory way to determine how the pubic lice may have been contracted.

If your child has been sexually active, you should address the issue immediately and directly. STDs are upsetting for anyone, but they can be especially disturbing when they occur in a child.

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ADDITIONAL RESOURCES

American Academy of Pediatrics Clinical Report: Head Lice, PEDIATRICS Vol. 110 No. 3 September 2002

<http://aappolicy.aappublications.org/cgi/reprint/pediatrics;110/3/638.pdf>

American Academy of Pediatrics Guidelines for the Prevention and Treatment of Head Lice Infestation, THE AMERICAN JOURNAL OF MANAGED CARE, Sept 2004

http://www.ajmc.com/media/pdf/A78_04FrankowskiS269_S272.pdf

Georgia Pest Management Handbook, The University of Georgia Cooperative Extension Service (http://www.ent.uga.edu/pmh/Hm_Humans.pdf)

Head Lice: Integrated Pest Management in and Around the Home, M. K. Rust, J. H. Klotz, N. C. Hinkle, and S. Klotz, IPM Education and Publications, UC Statewide IPM Project, University of California, Davis, CA 95616-8620.

(<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7446.html>)

Public Health Pest Management: *A Training Guide* (ENT 63), Michael F. Potter and G. Mark Beavers, Cooperative Extension Service, University of Kentucky, Department of Agriculture. (http://www.uky.edu/Ag/PAT/Ent_63.pdf)

The IPM Institute of North America, Inc. List of references -

http://www.ipminstitute.org/school_biblio_buildings.htm#Lice

The University of Georgia Cooperative Extension Service "A Parent's Guide to the Nitty-Gritty about Head Lice" and "A School's Guide to the Nitty-Gritty about Head Lice".

(http://www.caes.uga.edu/Publications/pubDetail.cfm?pk_id=6446&pg=np&ct=headlice&kt=&kid=&pid= and

http://www.caes.uga.edu/Publications/pubDetail.cfm?pk_id=6445&pg=np&ct=headlice&kt=&kid=&pid=)

Kid's Health for Parents, Nemours Foundation

(http://kidshealth.org/parent/infections/std/pubic_lice.html)

CDC - Treating Head Lice Infestation

(<http://www.cdc.gov/parasites/lice/>)

Understanding Head Lice Management

(<http://www.health.qld.gov.au/HeadLice/>)

The National Pediculosis Association

(<http://www.headlice.org/>)

SUPPLEMENTAL MATERIALS

For Nurses



References for nurses:

Burgess, Ian F. 2004. Human Lice and Their Control. *Annual Review of Entomology*. 49: 457-481.

ABSTRACT: Current research on human louse biology has focused on the long-standing debate about speciation of head and body lice but using new tools of DNA and enzyme analysis. These studies have indicated that head and body lice from the same geographical zone may be more closely allied than insects inhabiting the same ecological niche in other regions. However, the majority of research over the past decade has involved clinical aspects including transmission, treatment, and the appearance and identification of resistant strains within populations of lice. Despite advances, there is a need for a better understanding of louse biology, as existing therapies fail and lice remain potential vectors of disease for millions of people.

Izri, Arezki and Olivier Chosidow. 2006. Efficacy of Machine Laundering to Eradicate Head Lice: Recommendations to Decontaminate Washable Clothes, Linens, and Fomites. *Clinical Infectious Diseases*. 42: 9-10.
<http://cid.oxfordjournals.org/content/42/2/e9.full.pdf+html>

ABSTRACT: The efficacy of machine laundering to eradicate head lice should be determined. Viable lice and nits were machine laundered using 3 washing programs (with water temperatures of 40°C, 50°C, and 60°C), with and without detergent, and the results were compared with results for control lice and nits. A drying program was also used. Either washing done with a water temperature of at least 50°C or drying is necessary to kill head lice and nits.

Williams, L Keoki, Amanda Reichert, William R MacKenzie, Allen W Hightower, and Paul A Blake. 2001. Lice, Nits, and School Policy. *Pediatrics*. 107 (5): 1011-1015.
<http://pediatrics.aappublications.org/content/107/5/1011.abstract>

ABSTRACT: The epidemiology of head lice infestation is poorly understood. Many schools treat all children with nits as though they are contagious. Children with nits but no lice are often removed from school until they are treated and all visible nits are removed.... Although having ≥ 5 nits within one fourth inch of the scalp was a risk

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factor for conversion, most children with nits alone did not become infested. Policies requiring exclusion from school and treatment for all children with nits alone are likely excessive. Instead, these children may benefit from repeated examination to exclude the presence of crawling lice.

HEAD LICE PRESENTATION

SUPPLEMENTAL MATERIALS FOR SCHOOLS



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** SAMPLE ** HEAD LICE FOUND ON CHILD

"Date"

Dear Parent or Guardian of _____

Head lice or recently laid nits (eggs) have been found on your child's head. Head lice have nothing to do with the cleanliness of a house or parenting skills. Head lice are spread by head-to-head contact, although sharing hats, combs, and other hair accessories may also spread head lice. Head lice crawl, they cannot jump or fly. Head lice are not a risk to pets nor can you get head lice from a pet.

It is important to treat your child before he/she returns to school so that the head lice do not spread. Please begin treatment as soon as possible and then send your child back to school so that he/she does not miss learning opportunities in the classroom. This should take only one or two days. Your child will be rechecked when he/she returns to schools to make sure lice and nits have been killed. Also, remember to check everyone in the household and treat anyone that has live head lice and/or nits within ¼ inch of the scalp. Continuous checking may be required for 3 weeks to avoid reinfestation.

The following treatments are recommended:

Over-The-Counter Treatments:

Head lice may be treated with shampoos specifically labeled for head lice. *Read and follow the directions carefully.* Many of these shampoos are insecticides and should be used with caution, especially on children and by pregnant or nursing women. If your child has allergies or asthma, please consult with his/her physician. If the package directions indicate, apply a second treatment 10 days later to kill lice that hatch after the initial treatment. Do not over apply.

Removal of Head Lice and Nits:

Lice shampoos do not remove the eggs from the hair. The eggs must be combed out and/or manually removed. Sit behind your child in a room with good lighting to comb through the hair, one section at a time. Use a fine-toothed nit comb. These combs are sold at most stores or may be included in packages of the chemical treatments. Combs with metal teeth spaced close together work best. Your child's hair should be clean, wet, well combed or brushed to remove tangles before using the louse comb. A conditioner may be used to lubricate the hair. Divide hair into small sections. Comb through each section until no more lice or nits are observed. Clean the comb frequently with a paper towel to remove any lice or eggs. Continue to comb daily until no live lice are discovered for 3 weeks.

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Adult female lice cement eggs to the base of the hair shaft near the scalp. Combs, brushes, hats, and other hair accessories in contact with an infested person should be washed in hot water (130°F) to dislodge any lice or nits, and should not be shared with other family members.

Alternative Treatments:

Other products such as essential oils, food oils, salts, mayonnaise, etc., have not been studied sufficiently to determine effectiveness. Do not apply any household insecticide, (i.e., Raid) or other chemicals not specifically labeled for treating head lice on people. Well-intentioned parents treating their children with toxic or flammable substances, or hair dryers, have caused injuries and death. Because it is easy to burn the hair and the scalp, this method is not recommended.

Prescription Medications:

In some cases the over-the-counter products fail to eliminate live lice. Your child's physician may then order a prescription for treatment of head lice. Ask your physician, the school nurse or pharmacist if you don't fully understand the directions.

Treatment of clothes/household cleaning:

All items your child has been in contact with in the past two days such as towels, pillowcases, sheets, pajamas, clothes, coats, hats, and similar items should be washed in hot water (130°F) and dried on high heat for at least 30 minutes. Items that cannot be washed may be stored in a tightly sealed garbage bag for a period of two weeks or may be placed in a freezer or outdoors (if temperatures are below freezing) for 24 hours. Lice in the environment (not on the head) usually die within a day and the eggs generally cannot live much longer. Vacuuming the house, mattress and furniture is recommended. Using household insecticides to treat the home, vehicles, carpets or furniture is not recommended and may unnecessarily expose your household to harmful chemicals.

Please contact me if you have any questions.

Sincerely,

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**** SAMPLE ****

LICE DETECTED IN CLASSROOM LETTER GENERAL PREVENTION AND DIRECTIVE STEPS

“DATE”

Dear Parent/Guardian:

A case of head lice has been found in the school. The parents of all students are being notified via this letter. Head lice are very common in school-age children. They do not carry disease. They have nothing to do with the cleanliness of a house or parenting skills.

This is not cause for panic.

It is cause for action to be taken to prevent head lice.

Treat/remove any head lice or nits found on your child’s head.

It is extremely important for you to check your child’s head TODAY. If you find head lice, keep checking every 2 days until there are no head lice found for 10 consecutive days. The school is taking steps to control the spread of lice, including checking students’ heads and sending them home as needed.

The best way to prevent transmission:

- Teach children not to share combs, brushes, hair ornaments, hats, caps, scarves, headsets, or any other personal headgear.
- Do not try on other people’s hats (even in department stores).
- Teach children to hang coats separately - placing hats and scarves inside coat/jacket sleeves.
- Clean or disinfect shared headgear (i.e., helmets) with Lysol® or rubbing alcohol before being used by others.
- Conduct regular head checks of your child.

If head lice are found on your child:

- Check others in the household for signs of head lice or nits. If found, complete remaining steps on all infested individuals.
- Remove nits from the head by combing. This is the most important lice control measure. Complete nit removal is time-consuming but is critical for successful treatment.
- Use an effective head lice treatment.
- Remove all of the lice and nits from the environment by washing or vacuuming. There is no need to spray pesticides at home.
- Perform daily head checks and remove nits for 3 weeks until head lice are gone. Continue to check your child weekly to detect reinfestation.

If you have difficulties treating the head lice on your child, please contact the school, local health department, or your child’s physician.

Sincerely,

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** SAMPLE ** PARENT/GUARDIAN EDUCATION

“Date”

Dear Parents/Guardians,

We are sending this letter to all parents to increase head lice awareness so that you may take steps at home to help prevent your child from becoming infested with head lice. Any time children come together, particularly at the start of the school year or any social grouping like Girl/Cub Scouts, Brownies or Little League, head lice cases commonly increase. Please encourage your child not to share or trade personal items such as hats, combs, brushes, headbands, barrettes, as well as helmets or headphones with foam ear protectors.

Direct, physical, head-to-head contact is the usual method of transmission. Lice do not jump, fly or swim. They are, however, good crawlers. Check your child's head weekly for lice and/or nits (eggs). Mature lice, which are no bigger than a sesame seed, avoid light and are hard to see. Lice eggs or “nits” are usually found close to the scalp - usually within ¼ inch. They appear as tiny whitish ovals that are “glued” to the hair shaft. They cannot easily be flicked away as dandruff can. Head lice do not transmit disease and are not a serious medical condition. They cannot survive on your pets.

If you find head lice on your child, please notify the school and keep him or her home until properly treated. Continue to examine all family members for 3 weeks and treat if live lice or nits close to the scalp are found.

- Check Regularly
- Treat Quickly
- Help Keep Head Lice Off Your Child

For more information regarding head lice or its treatment, please feel free to contact the school office or your local health department. Thank you for your help and support.

Sincerely,

Head Lice Screening Procedure



Suggested equipment and supplies:

- ✓ Disposable applicator sticks or tongue depressors
- ✓ Strong source of natural light, high intensity lamp
- ✓ Magnifying glass
- ✓ Disposable gloves (optional)
- ✓ Trash can with garbage bags
- ✓ Transparent Tape
- ✓ Chair/privacy for person being screened
- ✓ Copy or knowledge of school district's head lice policy

Identification of head lice is made by direct inspection of the hair and scalp for the presence of live lice and nits. *More often than not, identification will be achieved by seeing attached nits rather than by crawling lice.* Lice and nits are most often found in the hair behind the ears and at the back of the neck.

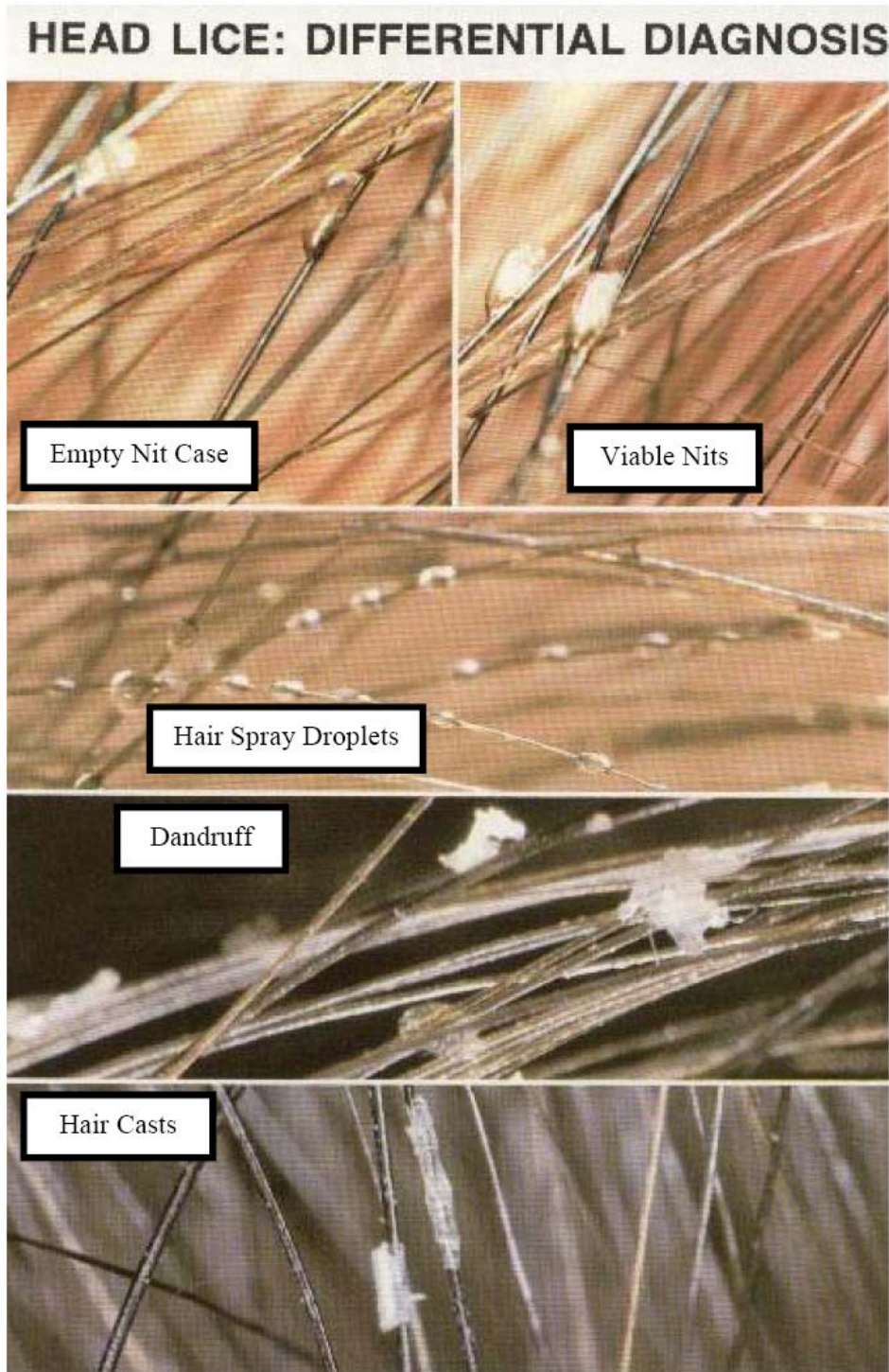
Things to Know:

- Live lice are about the size of a sesame seed, usually brown, and move quickly away from light.
- Nits are tiny, yellowish-white oval eggs firmly attached at an angle to the hair shaft.
- Be sure not to confuse nits with hair debris such as desquamated epithelial cell (DEC) plugs (bright white irregularly shaped clumps of dandruff stuck to the hair shaft), or hair casts (elongated segments of dandruff encircling the hair shaft). Children who have been over-applied with lice treatments often have these artifacts, which may confuse identification.

Screening Procedure:

- 1) Begin by separating the hair into small sections.
- 2) Using a natural light or high intensity lamp and magnifying glass if needed, examine the hair behind the ears, back of the neck and scalp for crawling lice or nits.
- 3) If no lice or nits are found in these areas, continue to inspect the rest of the head.

Differential Diagnosis



This picture is printed with the permission of
David Trager, President
Hogil Pharmaceuticals Corporation © 1994.



For Release: September 3, 2002, 12:01 am (ET)

CHICAGO - In a new clinical report, the American Academy of Pediatrics (AAP) attempts to clarify diagnosis and treatment of head lice and makes recommendations for dealing with this condition in school. Among its recommendations, the AAP says **no healthy child should be excluded from, or allowed to miss school because of head lice**, and that "no nit" policies for return to school should be discouraged. Numerous anecdotal reports exist of children missing weeks of school and even being forced to repeat a grade because of head lice.

Although not painful or a serious health hazard, head lice are the cause of much embarrassment and misunderstanding, many unnecessary days lost from school and work, and millions of dollars spent on remedies.

The AAP recommendations for treating head lice also include:

1. School personnel responsible for detecting head lice should be appropriately trained, as it can be difficult to diagnose.
2. Permethrin 1% (an insecticide) is currently the recommended treatment for head lice.
3. Head lice screening programs in schools do not have a significant effect on the incidence of head lice, and are not cost-effective. **Parent education programs may be a more appropriate management tool.**
4. Manually removing nits after medication for killing lice is not necessary to prevent spread. However it may be prudent to remove nits in school-aged children to decrease the chance of misdiagnosis. Nit removal is tedious and often cannot be accomplished in one sitting.

Because a child with an active head lice infestation has likely had the infestation for a month or more by the time it is discovered, and because the child poses little risk to others and does not have a resulting health problem, he or she should remain in class, but be discouraged from close direct head contact with others.

Head lice are most common in children three to 12 years of age, and all socioeconomic groups are affected. Head lice infestation is not significantly influenced by hair length or by frequent brushing or shampooing. Lice cannot hop or fly; they crawl. Transmission in most cases occurs by direct contact with the head of another infested individual. Indirect spread through contact with personal belongings of an infested individual (combs, brushes, hats) is much less likely, but cannot be excluded.

Currently there are a variety of treatments available for head lice including solutions in shampoo and cream rinse formulas, topical agents and manual removal. The AAP recommends Permethrin 1% as it has low toxicity for humans and does not cause allergic reaction to individuals with plant allergies. The product is a cream rinse applied to hair that is first shampooed with a non-conditioning shampoo and then towel-dried.

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It is probably impossible to totally prevent head lice infestations as young children frequently come into close head-to-head contact with each other. Children should be taught not to share personal items such as combs, brushes and hats. Adults should be aware of the signs and symptoms of head lice infestation, and affected children should be treated promptly to minimize spread to others.

NOTE: The American Academy of Pediatrics is an organization of 57,000 primary care pediatricians, pediatric medical subspecialists and pediatric surgical specialists dedicated to the health, safety and well-being of infants, children, adolescents and young adults.

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National Association of School Nurses POSITION STATEMENT

Nit Free Policies in the Management of Pediculosis

<http://www.nasn.org/Default.aspx?tabid=237>

HISTORY:

Surviving since prehistoric times, head lice (pediculosis capitus) are small parasitic insects that live on the scalp and neck hairs of their human hosts. Adult female lice prefer to attach their eggs (nits) to the base of a hair shaft.

DESCRIPTION OF ISSUE:

Families and school staff expend innumerable hours and resources attempting to eradicate infestations, expending equal efforts on live lice and their nits.

RATIONALE:

Rarely, if ever causing direct harm, head lice are not known to transmit infectious disease person-to-person. Furthermore, current research does not support the conclusion that enforced exclusion (nit free) policies result in reduced transmission of head lice.

CONCLUSION:

It is the position of the National Association of School Nurses that nit-free policies disrupt the education process and should not be viewed as an essential strategy in the management of head lice.

References:

Centers for Disease Control Fact Sheets.

More information on this topic can be found in the Journal of School Nursing, Feb 2007, Volume 23, No 1 at:

<http://www.aacps.org/applications/billboardmanager/daves/upload/no%20nit%20pol.pdf>

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The following reference can be found at the URL below:

<http://www.cdc.gov/parasites/lice/index.html>

Update on Head Lice in Schools: Do 'No-Nit' Policies Work? May 2001

A recent Centers for Disease Control and Prevention/Georgia Department of Human Resources, Division of Public Health study investigated the probability that schoolchildren found with nits alone will become infested with lice.

According to an article published in the May 7, 2001 issue of *Pediatrics*, more than 1,700 Atlanta-area schoolchildren were examined for head lice. Ninety-one were found with nits alone or lice. Of the 63 children with nits only, 50 completed the study. Of the 50 children with nits alone, only 9 or 18% became infested with lice during the 2-week follow-up. "This is good evidence that most nits do not develop into lice," says Allen Hightower, statistician for the study. "There is some evidence that nits found within 1/4 inch of the scalp will develop into lice, but even in these cases, two-thirds did not." In the study, seven of 22 children with five or more nits found within 1/4 inch of the scalp developed a lice infestation during the 2-week follow-up. The data suggest that health policy developers consider reevaluating the usefulness of a "no-nit" policy that excludes children from school just because nits alone are found in the hair.

For More Information

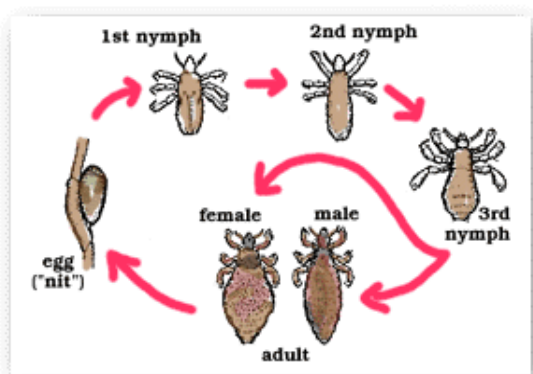
Williams LK, Reichert A, Mac Kenzie WR, Hightower AW, Blake PA. Lice, nits, and school policy. *Pediatrics* 2001; 107:1011-1015.

Communicable Disease Surveillance Center. Working document combs out guidance on head lice. *Commun Dis Rep CDR Wkly* 1998; 8:405.

Pollack RJ, Kiszewski AE, Spielman A. Overdiagnosis and consequent mismanagement of head louse infestations in North America. *Pediatr Infect Dis J* 2000;19:689-793.

Pray WS. Head lice: perfectly adapted human predators. *American Journal of Pharmaceutical Education* 1999; 63:204-209.

Juranek DD. *Pediculus capitis* in school children: epidemiologic trends, risk factors, and recommendations for control. In: Orkin M, Malback HL, eds. *Cutaneous Infestations and Insect Bites*. New York, NY:Marcel Dekker, Inc: 1985; 199-211.



What Can the School Do To Help Control and Prevent Head Lice?

Clean the School Environment:

- Vacuum all floors, rugs, pillows, carpet squares, and upholstered furniture. There is no need to discard the vacuum bag after cleaning except for aesthetic purposes.
- Play clothing, linens, art smocks, stuffed animals, and cloth toys used by an infested child within 2 days before diagnosis should be washed in hot water, or machine dried at the highest heat setting for at least 30 minutes.
- Spraying or fogging schools with insecticides or pediculicides is **NOT RECOMMENDED**, and may be harmful if used in poorly ventilated areas.
- Shared headgear, headphones, and/or helmets should be cleaned and disinfected with Lysol® or rubbing alcohol before being used by other people.

To Prevent Transmission:

- Teach children not to share or use their friends' combs, brushes, hair ornaments, hats, caps, scarves, headphones with foam protectors, coats, pillows, or any other personal headgear.
- If possible, provide separate lockers or "cubby holes" for each child's coat and clothing. Consider separate plastic bags for each child to put their personal items in before hanging on hooks if no lockers are available.
- Teach children to place their hats, mittens and scarves inside coat/jacket sleeves before hanging on hooks if coats can hang separately.
- Pets in the classroom do not need to be treated and cannot maintain or transmit lice.
- Begin head lice education within the classrooms so that children can understand head lice and what they can do to help prevent the spread of lice.

SUPPLEMENTAL MATERIALS AT HOME



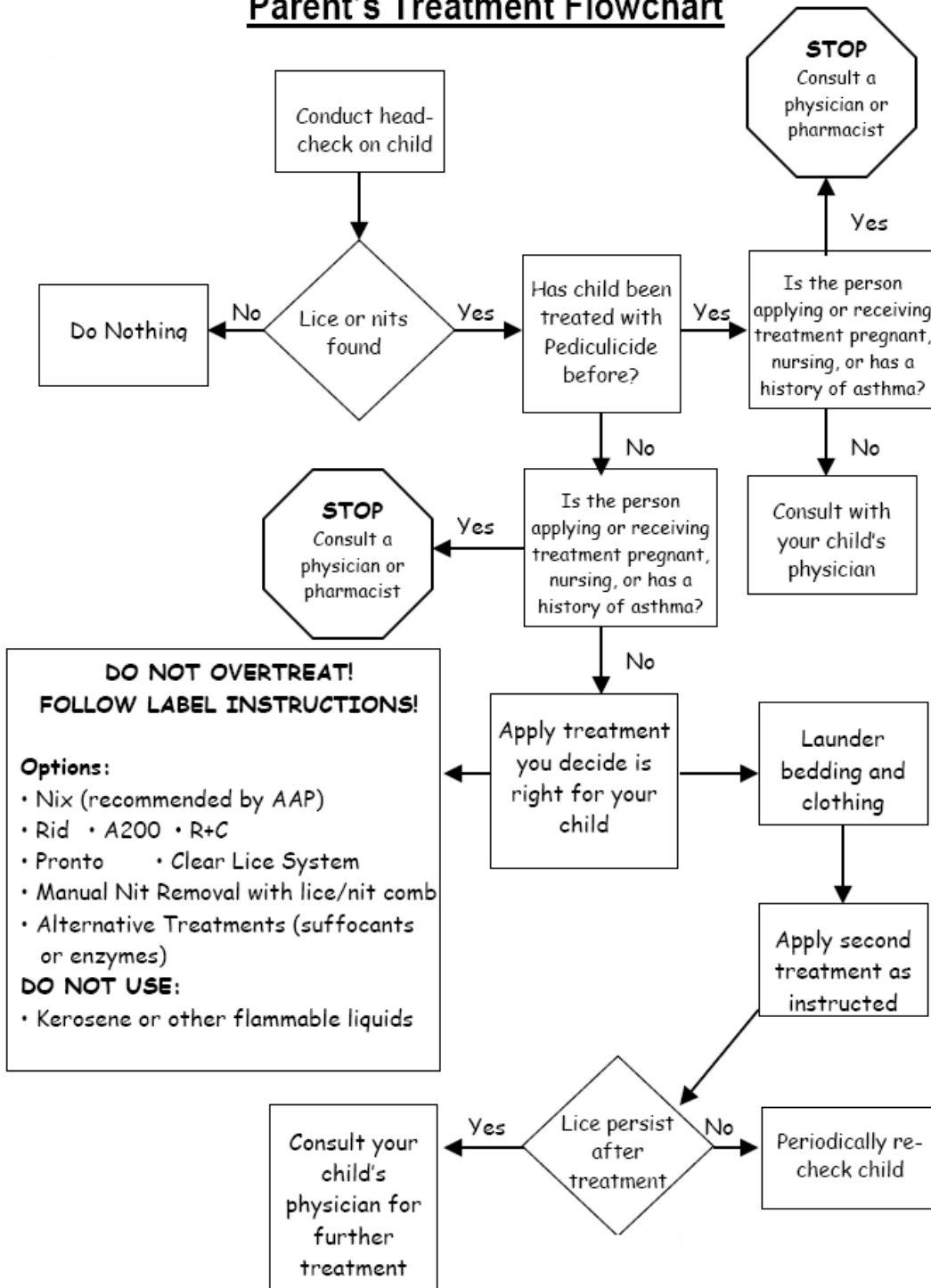
10 Tips for Manual Removal of Head Lice

1. Work in a well-lighted area or use a flashlight and magnifying glass/hand lens.
2. Use a grooming comb or hairbrush to remove tangles. A hair detangler spray or other hair conditioner may aid in this process.
3. Divide the hair in sections and secure the hair that is not being worked on.
4. Use a lice comb to detect and remove lice and nits (a comb with closely placed stainless steel teeth works well).
5. Go through hair sections from the scalp to the end of the hair. Nits are usually found close to the scalp.
6. Dip the comb in a cup of hot, soapy water or use tape to remove any lice, nits, or debris from the comb.
7. Sift through the same section of hair and look for attached nits and live lice.
8. Move on to the next section until entire scalp and all hair has been checked.
9. Screen the infested person every day for ten days and regularly thereafter.
10. If additional nits (at least 3-5 per day) are discovered, another manual search is recommended.



Adapted from The University of Georgia Cooperative Extension Service "A Parent's Guide to the Nitty-Gritty about Head Lice" pamphlet.

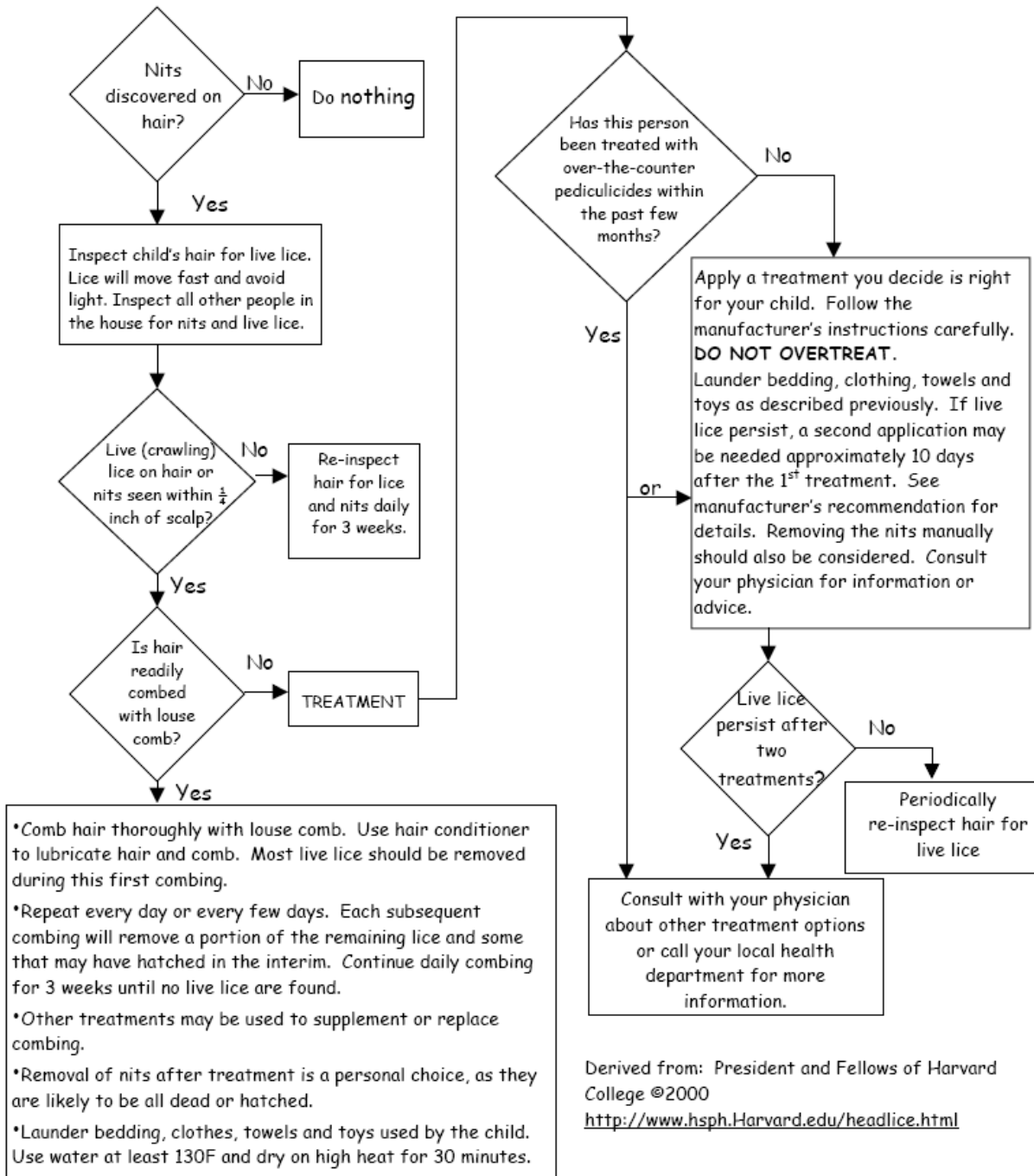
Parent's Treatment Flowchart



Derived from the Michigan Head Lice Manual:

http://www.michigan.gov/documents/Final_Michigan_Head_Lice_Manual_103750_7.pdf

Parent's Flowchart for Managing Head Lice Infestations



10 Steps to Keep Ahead of Head Lice

- 1) Watch for signs of head lice, such as frequent head scratching. Anyone can get lice, mainly from direct head-to-head contact, sharing hats, brushes, etc.
- 2) Check all family members for lice and nits (lice eggs) at least once a week.
- 3) Be sure not to confuse nits with hair debris, (i.e., dandruff, hair spray droplets or hair casts). Nits are yellowish-white, oval shaped and are attached at an angle to the side of the hair shaft.
- 4) Consult a pharmacist or physician before applying pesticides or other lice treatments if anyone involved is pregnant or nursing, has allergies, asthma, or has nits in the eyebrows or lashes. Never use a pesticide or lice treatment on or near the eyes.
- 5) Consider all of your treatment options. Remember, lice-killing products are pesticides and must be used with caution. If you choose alternative methods, they may not have been studied thoroughly enough to determine long-term outcomes. The only completely safe alternative is manual removal by combing.
- 6) Remove all nits. Separate hair sections and remove nits with a lice comb, baby safe scissors or your fingernails.
- 7) For lice treatment, follow package directions carefully. Use the products over the sink, not in the tub!
- 8) Wash bedding and recently worn clothing in hot water (above 130°F) and dry in high heat for 30 minutes. Combs and brushes should be soaked in hot water for 10 minutes.
- 9) Avoid lice sprays! Vacuuming is the safest and best way to remove lice or fallen hairs with attached nits from furniture, rugs, stuffed animals and car seats.
- 10) Notify your child's school, camp, child-care provider, play partners, and neighborhood parents. **Check for lice on a regular basis.**



Derived from the Michigan Head Lice Manual:
http://www.michigan.gov/documents/Final_Michigan_Head_Lice_Manual_103750_7.pdf



Derived from the Michigan Head Lice Manual:
http://www.michigan.gov/documents/Final_Michigan_Head_Lice_Manual_103750_7.pdf

10 Days to Freedom from Head Lice

Day 1

- Notify or check all exposed friends and family members.
- Treat only those who are infested with live lice or have evidence of nits laid $\frac{1}{4}$ inch from the scalp.
- Wash all bedding, clothing, and toys in hot water (130°F) and dry on high heat for 30 minutes.
- Vacuum all carpeting, furniture and car upholstery.

Day 2

- Vacuum.
- Check all members of home for nits that may have been missed.
- Comb/pick nits out of hair.

Day 3

- Vacuum.
- Check all members of home for nits that may have been missed.
- Comb/pick nits out of hair.

Day 4

- Vacuum.
- Check all members of home for nits that may have been missed.
- Comb/pick nits out of hair.

Day 5

- Vacuum.
- Check all members of home for nits that may have been missed.
- Comb/pick nits out of hair.

Day 6

- Vacuum.
- Check all members of home for nits that may have been missed.
- Comb/pick nits out of hair.

Day 7

- Vacuum.
- Check all members of home for nits that may have been missed.
- If nits or lice are still seen, repeat treatment if indicated by instructions.

Day 8

- Vacuum.
- Check all members of home for nits that may have been missed.
- Comb/pick nits out of hair.
- If nits or lice are still seen, repeat treatment if indicated by instructions.

Day 9

- Vacuum.
- Check all members of home for nits that may have been missed.
- If nits or lice are still seen, repeat treatment if indicated by instructions.

Day 10

- Vacuum.
- Check all members of home for nits that may have been missed.
- Comb/pick nits out of hair.
- If nits or lice are still seen, repeat treatment if indicated by instructions.

**** Some lice treatments may indicate a second treatment after 7 to 10 days. Please follow the manufacturer's instructions carefully and only apply when it is suggested. This chart serves as a reminder only for days 7,8,9, and 10. ****