

Michigan Head Lice Manual



A comprehensive guide to identify, treat,
manage and prevent head lice



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of Community Health*



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Michigan Head Lice Manual

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1) Introduction ---

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 information about head lice in a technical sense as well as a quick reference. The information in this manual was compiled by members of a workgroup consisting of a physician, school nurses, local public health officials, entomologists, educators, an infection control professional, laboratory personnel, and epidemiologists. Recognizing that head lice can be sensitive topic, the group strived to examine, research, and ultimately make recommendations in the best interest of children and others impacted by head lice. The big challenge is treating our culture's response to head lice rather than the condition itself. The core of that treatment is educating the schools, the families, and the professionals in a calm and nonjudgmental fashion and offering support to all involved. Please read the document in its entirety so the recommendations and the scientific basis for them can best be understood.

2) Medical Impact ---

Pediculosis is an infestation of head lice, not an infection. It does not pose a significant health hazard and is not known to spread disease. The most common symptom is itching due to sensitization to allergens in lice saliva. Many times there are no symptoms. Occasionally, scratching leads to chafing and secondary bacterial infection requiring treatment with an antibiotic. The public health disease impact from *Pediculosis capitis* is negligible.

The largest impact of head lice comes not from the condition itself but from our culturally-based reactions and emotions towards the condition. A case of head lice in a school or day care setting can create fear and anger among the community that is far greater than it should be relative to the actual health threat it poses. This can lead to teasing of the child with secondary impact on self-esteem, anger directed toward the parents and facility personnel involved, and lost days of school and work, not just for those with lice but those afraid of getting lice. 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.

3) Michigan School Head Lice Prevention and Control Policy

The Michigan Department of Community Health (MDCH) and the Michigan Department of Education (MDE) jointly support the following statements for the management of head lice infestations within school communities. Currently, there is no scientific evidence demonstrating that enforced exclusion policies are effective at reducing head lice transmission. Although the lice policy is ultimately up to the school administration, school officials are urged to consider these recommendations. **Documents to support these recommendations can be found at the end of this manual.**

Policy Recommendations

At this time, MDCH and MDE recommend a policy that focuses on the exclusion of active infestations only. Active infestations can be defined as the presence of live lice or nits found within ¼” of the scalp. Nits that are found beyond ¼” of the scalp have more than likely hatched, or are no longer viable.

- **Any student with live lice may remain in school until the end of the school day (see Procedures). Immediate treatment at home is advised. The student will be readmitted to school after treatment and examination. If, upon examination, the school-designated personnel finds no live lice on the child, the child may reenter the school.**
- **Any student with nits (farther than ¼” from scalp) should be allowed in school.**
- **Parents should remove nits daily and treat if live lice are observed.**

Procedures

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

1. 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.
2. 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.
3. 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.
- 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 that update teachers and school administration about screening techniques, identification of head lice and treatment options.
- Disseminating the most current information on head lice recommendations and control measures.

4) Head Lice 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 (see Figure 2.). They are flattened dorso-ventrally or top to bottom (see 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. They survive by piercing the skin to feed on blood and are almost exclusively associated with hair on the neck and scalp.

Figure 1.



Figure 2.



Figure 3.



Head lice are members of a group of insects (Pthiraptera), which 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 and likely co-evolved with humans from lice associated with our primate ancestors. 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

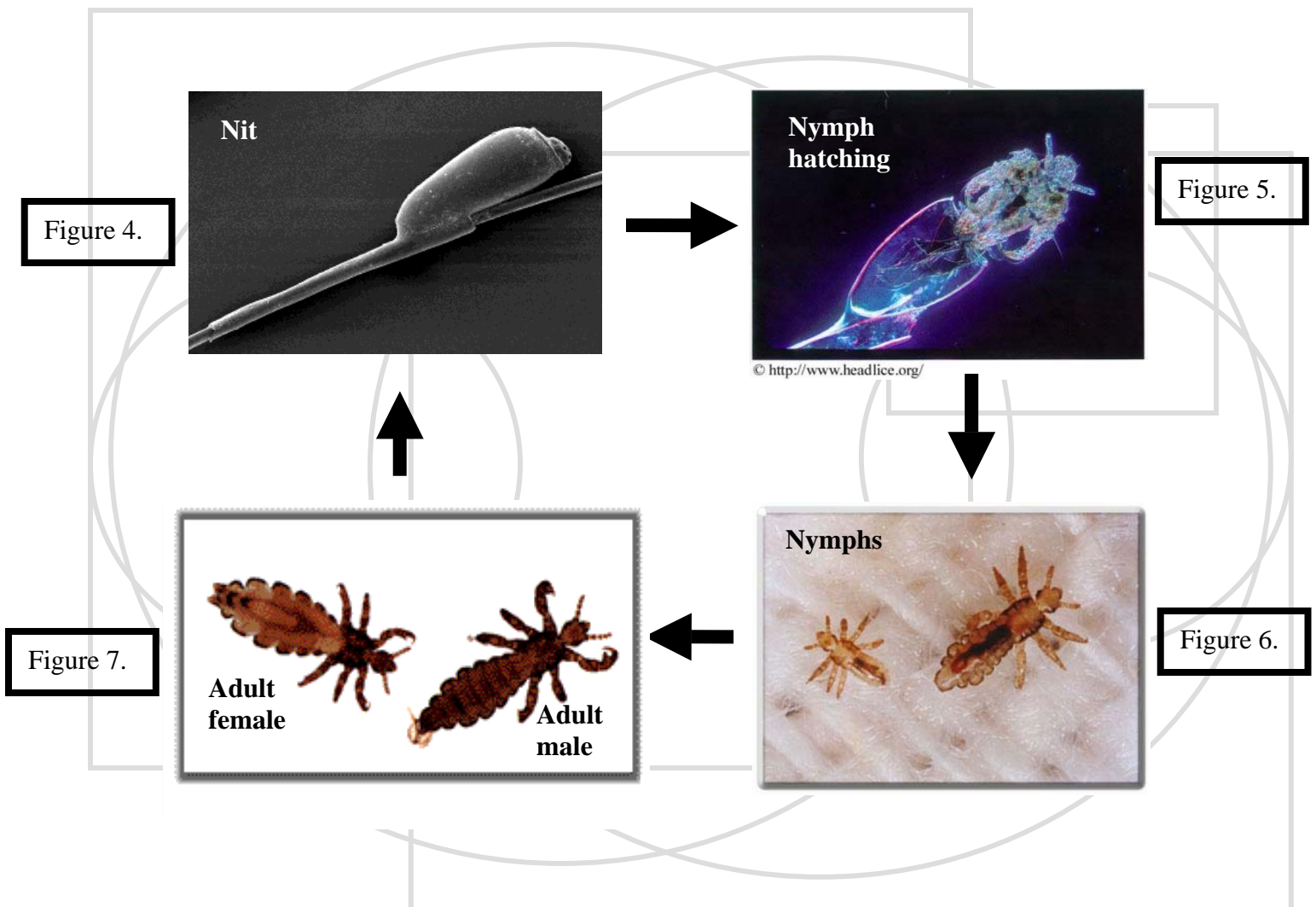
The head louse feeds by using rasping teeth to penetrate scalp skin at the base of a hair or behind the ears. The louse then inserts its retractable proboscis into a blood vessel, along with anticoagulants, and feeds much like a mosquito. This feeding activity can be a source of irritation and leads 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.

Although head lice feed on blood and are relatives of the human body louse – an insect that can transmit typhus and other bacterial diseases – head lice are not known to transmit any microbiological disease agent. 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.

Life Cycle

Egg = “nit”: Eggs are attached to hairs (Figure 4.) individually by the female 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 lasts about 7 – 10 days.



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 about 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. 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.

5) Identification of Head Lice ---

Suggested Equipment and Supplies:

- ✓ Applicator stick or tongue depressor
- ✓ Strong source of natural light, high intensity lamp, or strong flashlight
- ✓ Magnifying glass with a light source if possible
- ✓ Disposable gloves (optional)
- ✓ Clean/dry container with secure closure if submitting specimen to laboratory
- ✓ Scissors and forceps for collecting samples of hair
- ✓ Transparent Tape

Methods

Head lice are best identified by inspecting the hair and scalp for live lice or nits (eggs attached to the hair shaft). 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 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 one-half inch from the scalp, the egg has either hatched or is non-viable.

Question about identifying lice or nits should be referred to a health care professional. Live lice may be submitted to a laboratory in a clean/dry container or on a piece of transparent tape. Pieces of hair with possible nits attached may be snipped and submitted to the laboratory in the same manner. Contact the laboratory for further instructions on specimen submission.

Nits or lice in the eyelashes or eyebrows indicates possible infestation with other species of lice. 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 will be required.

6) Treatment

¹Treatment should be considered only if active 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 can be effective but time-consuming. Lice or nit combs are useful in removing lice and eggs. Many types of fine-toothed combs may be included within packages of pediculicides or they may be purchased from most drug stores or internet retailer. The effectiveness depends on their composition (metal or plastic) and construction (length and spacing) of the comb teeth, the texture of the hair to be combed, combing technique, and the time and care expended in the effort. Electronic combs may be useful for detection (if vision is limited), since they emit a sound when a live louse is present. The parent/guardian should first make sure a standard comb moves through the hair without

¹The following information (pages 16-23) was derived from a Clinical Report written by Barbara L. Frankowski, MD, MPH; Leonard B. Weiner, MD; the Committee on School Health; and the Committee on Infectious Diseases – American Academy of Pediatrics, published in PEDIATRICS Vol. 110 No. 3 September 2002.

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 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. Remove nits 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, cured 38% of children.**

Over-the-Counter Methods

Pediculicides

There are many medicated products 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 has been reported to be 80% to 95%. (See Pediculicide Resistance).

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 head lice in newly diagnosed cases.** It has even lower mammalian 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.

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 who 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 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.

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. 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.

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.

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, 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 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.

Lindane (1%)

**** NOT RECOMMENDED FOR USE ****

Lindane (Kwell) 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. It is available only by prescription as a shampoo that should be left on for no more than 10 minutes with repeated application in 7 to 10 days. It has low ovicidal activity (30% to 50% of eggs are not killed), and resistance has been reported worldwide for many years. For these reasons, it should be used very cautiously as a last resort. **The State of Michigan does not recommend using Lindane.**

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.

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. A petroleum shampoo consisting of 30g to 40g of standard petroleum jelly is massaged on the entire surface of the hair, scalp, covered with a shower cap, and left 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.

Treatment products containing enzymes claim to dissolve or soften the glue that attaches the nit to the hair shaft, thereby providing easier removal of lice and nits when combing.

“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 State of Michigan cannot recommend these treatments without further evidence of their effectiveness.** Please contact your local health department or family physician to make sure there are no potential health consequences of alternative methods.

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.

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.

Treatment of the Environment

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.

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.

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

7) School Assistance ---

Tips for Preventing 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.
- 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.

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 except for aesthetic purposes.
- 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 clothing, linens, smocks and cloth toys worn or handled by an infested individual within 2 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 in below freezing temperatures.
- It is **not** necessary to hire an exterminator.
- **Spraying or fogging schools with insecticides or pediculicides is NOT RECOMMENDED, and may be harmful if used in a poorly ventilated area.**

8) Supplemental Materials

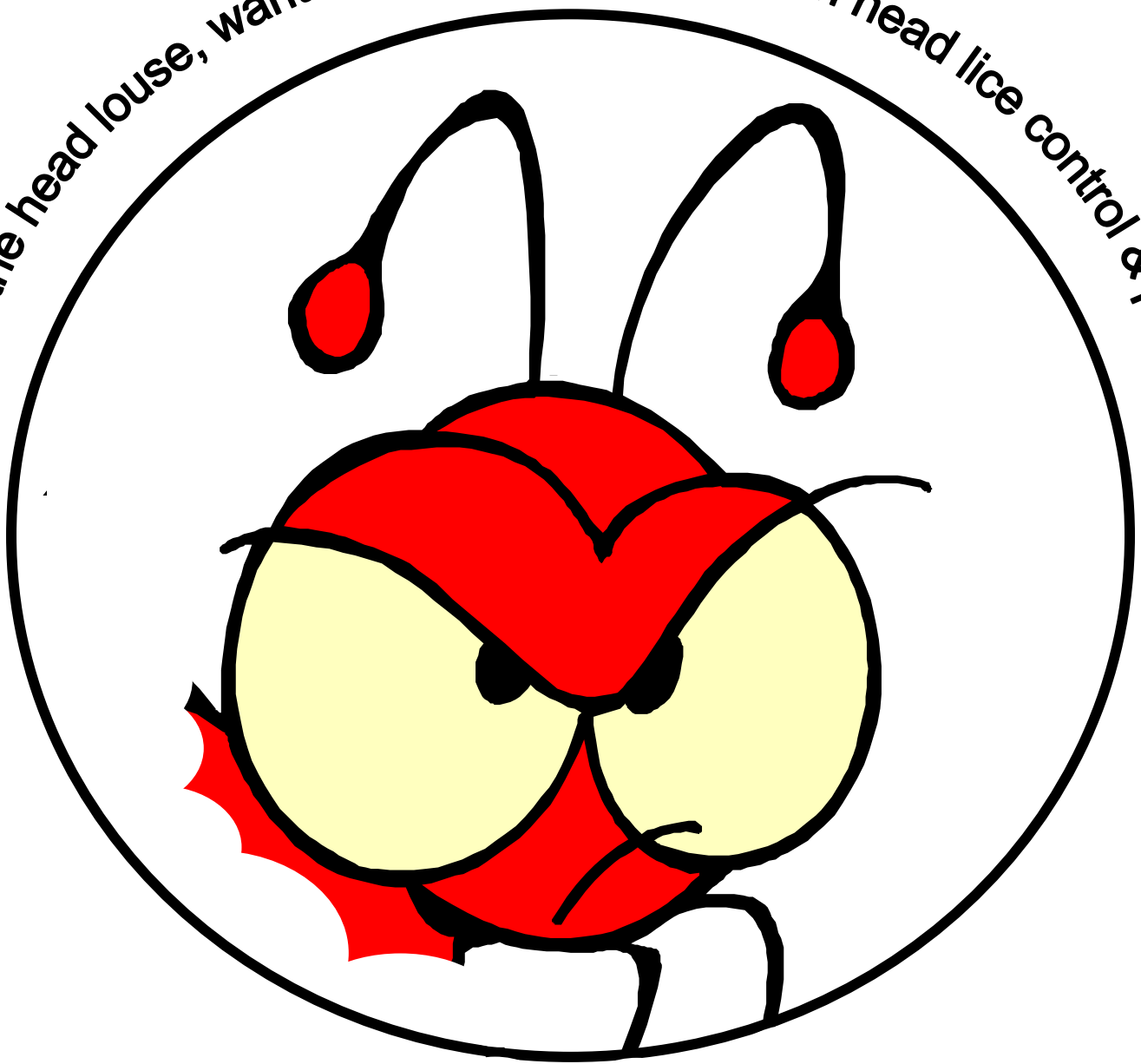
For Schools:

- Lenny the head louse
- Sample Letters
 - Parent/Guardian Education
 - Head Lice Found on a Child
 - Head Lice Detected in Classroom
- What Can the School Do to Help Control and Prevent Head Lice
- Head Lice Screening Procedure
- Differential Diagnosis

For Parents/Guardians:

- Treatment Flowchart
- Management Flowchart
- 10 Steps to Keep Ahead of Head Lice
- 10 Days to Freedom from Head Lice

Lenny, the head louse, wants to educate Michigan on head lice control & prevention.



**** 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,

**** 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 cannot jump or fly. Head lice crawl and are not a risk to pets.

It is important to treat your child before he/she returns to school. Please begin treatment as soon as possible and then send your child back to school so that they do not miss learning opportunities in the classroom. 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. 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 will unnecessarily expose your household to harmful chemicals.

Please contact me if you have any questions.

Sincerely,

**** SAMPLE ****
- LICE DETECTED IN CLASSROOM LETTER -
GENERAL PREVENTION AND DIRECTIVE STEPS

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:

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. Keep checking every 2 days until there are no head lice found for 10 consecutive days.

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,

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.

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:

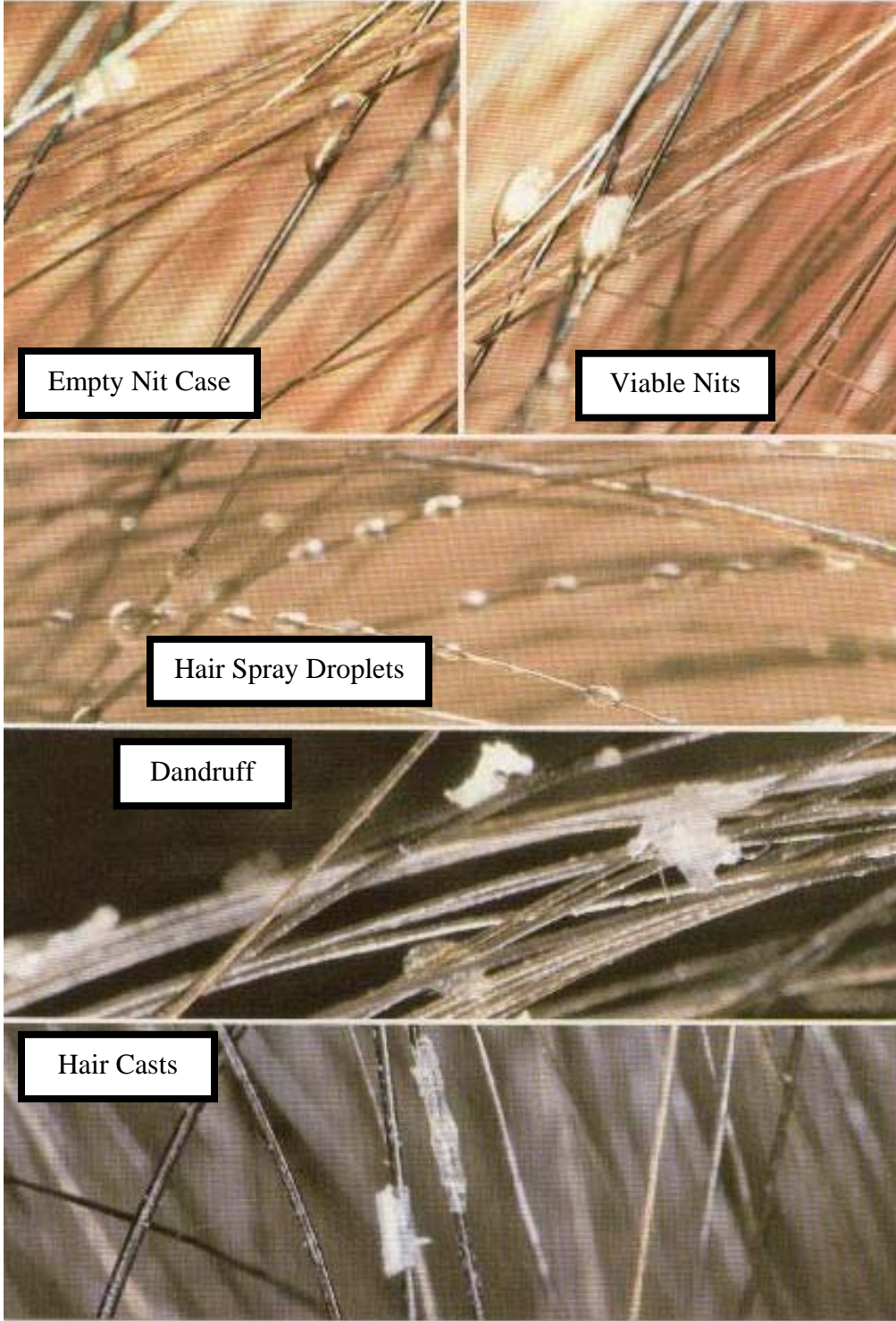
- Live lice are about the size of a sesame seed, usually brown, and move quickly away from light.
- Nits are tiny, yellowish-white oval eggs firmly attached at an angle to the hair shaft.
- Be sure not to confuse nits with hair debris such as desquamated epithelial cell (DEC) plugs (bright white irregularly 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

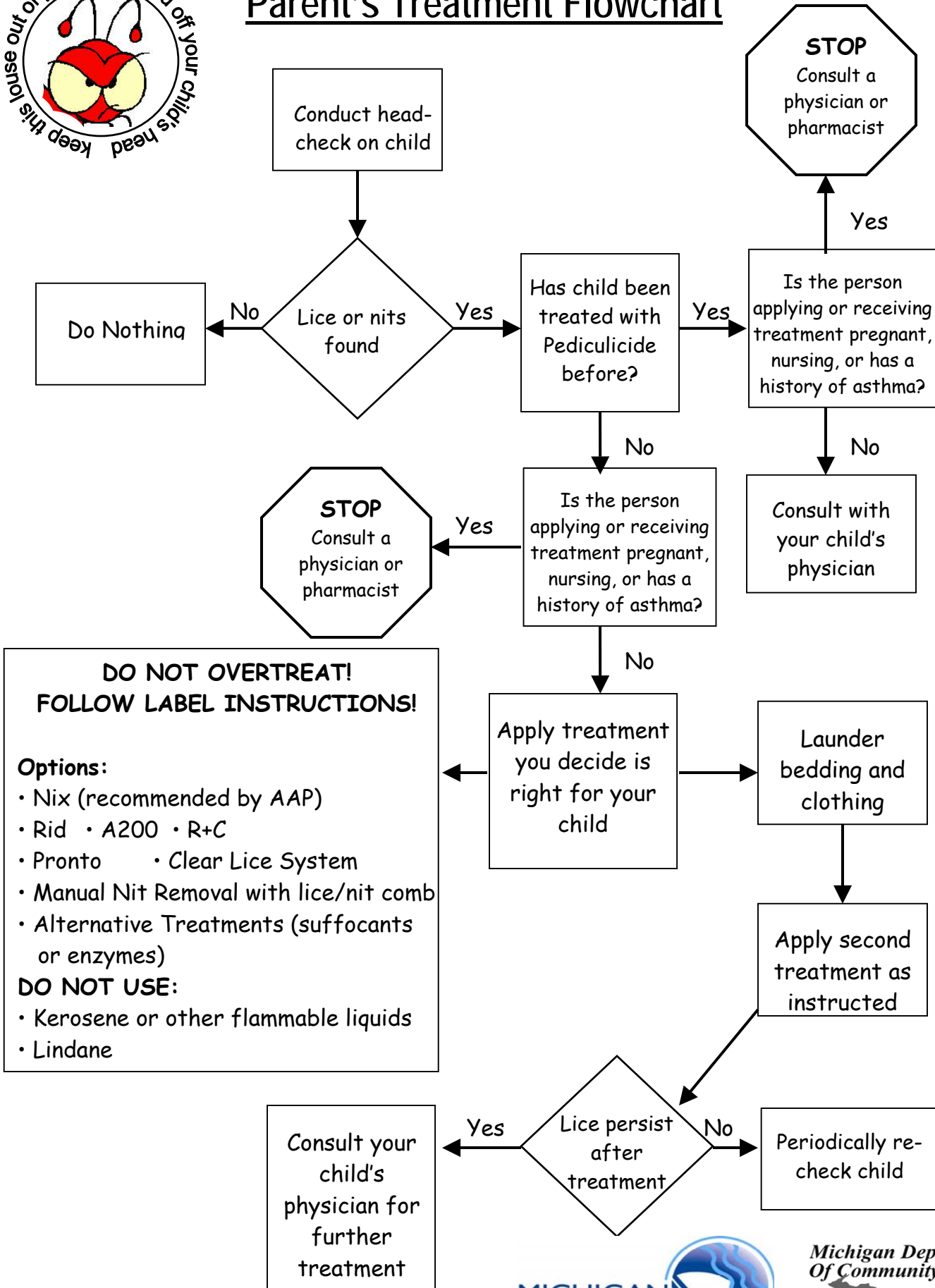
HEAD LICE: DIFFERENTIAL DIAGNOSIS



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



Parent's Treatment Flowchart



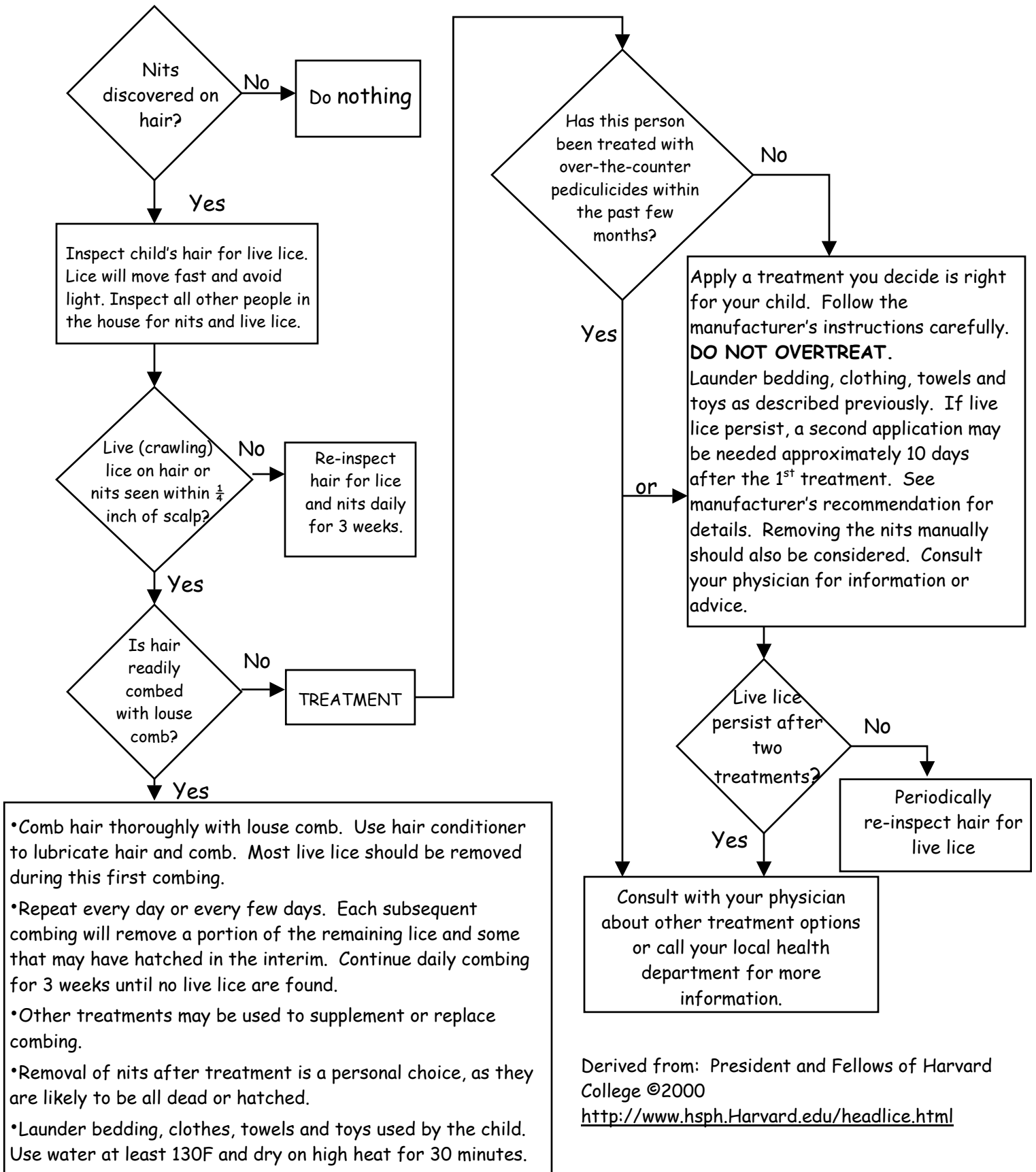
**DO NOT OVERTREAT!
FOLLOW LABEL INSTRUCTIONS!**

Options:

- Nix (recommended by AAP)
- Rid • A200 • R+C
- Pronto • Clear Lice System
- Manual Nit Removal with lice/nit comb
- Alternative Treatments (suffocants or enzymes)

DO NOT USE:

- Kerosene or other flammable liquids
- Lindane





Michigan Department
Of Community Health



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 (not boiling) 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.**

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 ¼ 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. ****

9) Supporting Documents ---

The following reference can be found at the URL below:

Lice, Nits, and School Policy, PEDIATRICS Vol. 107 No. 5 May 2001
<http://w3.mesd.k12.or.us/shs/headlice/licepolicy1.html>

The following reference can be found at the URL below:

American Academy of Pediatrics Clinical Report: Head Lice, PEDIATRICS Vol. 110 No. 3 September 2002
<http://aappolicy.aappublications.org/cgi/content/full/pediatrics;110/3/638>

The following reference can be found at the URL below:

<http://www.aap.org/advocacy/archives/septlice.htm>

News Release

NEW HEAD LICE STATEMENT: AAP DISCOURAGES "NO NIT" POLICIES FOR SCHOOL RETURN

Below is a news release on a *clinical report* published in the September issue of *Pediatrics*, the peer-reviewed, scientific journal of the American Academy of Pediatrics (AAP) or Pediatrics electronic pages, the Internet extension of Pediatrics.

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:

- School personnel responsible for detecting head lice should be appropriately trained, as it can be difficult to diagnose.
- Permethrin 1 percent (an insecticide) is currently the recommended treatment for head lice.
- 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.

- 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 percent 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.

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.

EDITOR'S NOTE: More information on this topic can be found at: Head Lice
http://www.medem.com/search/article_display.cfm?path=n:&mstr=/ZZZ5CPTOBAC.html&soc=AAP&srch_typ=NAV_SERCH

EDITOR'S 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.



Ms. Brenda Brennan
Michigan Department of Community Health
3423 Martin Luther King Jr. Blvd
Lansing, MI 48909

6-11-04

Dear Ms. Brenda Brennan:

The Board of Directors of the Michigan Association of School Nurses, (MASN), is pleased that the Michigan Department of Community Health has convened a workgroup to update recommended policies and procedures that is user-friendly. This policy is based on research and experience of numerous professional organizations and individual professionals in the health field. Thank you for this effort.

MASN supports the new recommended policy and procedures for head lice prevention and control as presented by the Head Lice Workgroup.

Sincerely,

Kathleen J. Williams, RN
(Electronically signed)

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The following reference can be found at the URL below:
<http://www.nasn.org/positions/nitfree.htm>

National Association of School Nurses

POSITION STATEMENT

Nit Free Policies in the Management of Pediculosis

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.

Pollack, Richard J., "Head Lice Information", Department of Immunology and Infectious Disease (DIID), Laboratory of Public Health Entomology, Harvard School of Public Health.
<http://www.hsph.harvard.edu/headlice.html>

Adopted: November, 1999

The following reference can be found at the URL below:
http://www.cdc.gov/ncidod/dpd/parasites/headlice/factsht_head_lice_treating.htm

**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 re-evaluating 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.

10) Head Lice Workgroup

Workgroup contributions were made by the following:

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Patty Lawless	Michigan Department of Education
Joshua Meyerson, MD, MPH	District Health Department #4 and Northwest MI Community Health Agency
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Mary Grace Stobierski, DVM, MPH	Michigan Department of Community Health
Elaine Tannenbaum	Ingham County Health Department

And special thanks to Sandra Enness for the design and layout of this manual.

