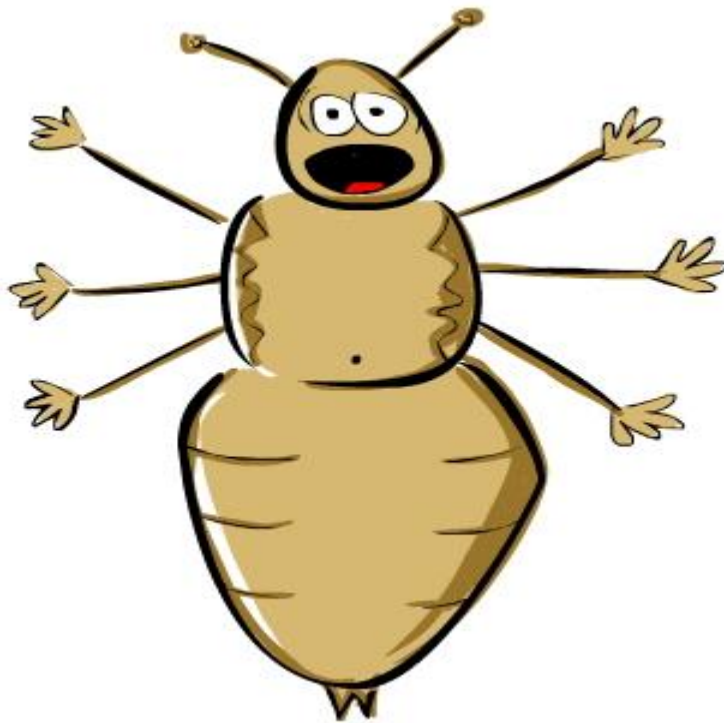


# Fort Payne City School Health Services Head Lice Manual

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



**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.

**Policy and Procedure:**

It is the position of the Fort Payne City Schools Health Services Department that the management of pediculosis (head lice) should not disrupt the educational process. The presence of nits (eggs) does not always indicate active infestation and no evidence is found that the presence of nits correlates with any disease process. The "No Nit" policy, which was suggested in 1997 as a guideline by the Alabama State Department of Education (ALSDE) and the Alabama Department of Public Health (ADPH), is now being discouraged. The ADPH does not require that a student with nits be denied attendance in school, and this is supported by the Center for Disease Control (CDC), the American Academy of Pediatrics, and the National Association of School Nurses. At this time, the Fort Payne City Board of Education recommends a policy that focuses on the exclusion of active infestations only. Active infestations can be defined as the presence of live lice and the location of nits within ¼" of the scalp. Nits that are found beyond ¼" of the scalp have more than likely hatched or may no longer be viable.

The school nurse is the most knowledgeable professional in the school setting and ideally suited to provide education and guidance regarding "best practices" for head lice/nit management. The goal of any actions by the school nurse is to contain infestation, provide appropriate health information for treatment and prevention, prevent overexposure to potentially hazardous chemicals, and minimize school absences. The following protocol is suggested as "best practice" for managing head lice in the school setting:

- If a student is suspected of having head lice, the school nurse will be notified and will verify by visual examination with a positive or negative finding.
- The principal will be notified and the parent will be contacted (verbal communication is preferred) of positive findings and proper instructions will be provided.
- The school nurse will make a determination as to whether a child can return to class based on visual inspection. The decision for the student to be sent home will be made on a case by-case basis by the school nurse.
- Most students with live lice may remain in school until the end of the school day.

- Immediate removal of the student is usually unnecessary. If the student has lice, they probably have been infested for weeks and prompt removal of the student could lead to embarrassment and ridicule. However, cases of severe infestation may require prompt removal by the nurse.
  - Transmission via school bus seats is not likely because of the biology of head lice. In most cases the student should be allowed to ride the school bus home unless there is a severe infestation, as documented by the school nurse.
  - Any student with nits (farther than ¼" from scalp) should be allowed in school
- Immediate treatment at home, for active infestations, is advised. Treatment suggestions will be provided by the school nurse. Parents should remove nits daily and treat if live lice are observed.
- The student will be readmitted to school after treatment and examination by the school nurse.
- If it is apparent that proper treatment has not been followed, the child can be sent back home for continued treatment. The school nurse will repeat treatment instructions to the parent.
- It is the responsibility of the parent/guardian to follow procedure and return their child to school promptly.
- If it is apparent that a family is diligently working to correct the problem, the nurse will allow the student to return to class with close monitoring.

This revised approach to head lice management in the school setting will significantly reduce unnecessary school absences, limit embarrassment of students and decrease unnecessary exposure to potentially toxic chemicals.

### **Head Lice Biology:**

#### **General Introduction**

Human head lice 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. They are flattened dorso-ventrally or top to bottom 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.



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. They are closely related to body lice, commonly known as “cooties” and are in the family

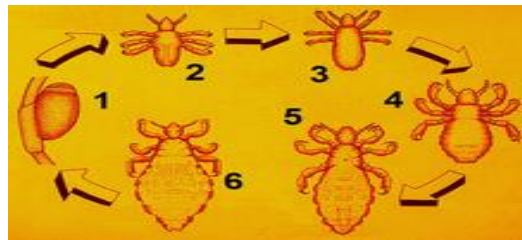
Pediculidae. Pediculidae have been associated with humans since antiquity and likely co-evolved with humans from lice associated with our primate ancestors. Most experts consider the human head louse and human body louse to be variants of the same species (*Pediculus humanus*) that segregate by habitat 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**

Eggs are attached to hairs 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 in 8 - 11 days under normal conditions into a nymphal stage 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 stage lasts about 7 – 10 days.



The final molt leads to an adult stage 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.**

### Identification of Head Lice

#### Suggested Equipment and Supplies

- Applicator stick
- Strong source of natural light, high intensity lamp or strong flashlight
- Magnifying glass
- Trash can

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 nonviable.

#### Treatment

Treatment 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 re-inspections 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 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 are medications used to kill head lice. Pediculicides kill nymphs and adult lice, but do not destroy nits. 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 second treatment 7 to 10 days later to kill newly emerged nymphs hatched from eggs that survived the first treatment.

### **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. Removal of nits is recommended to reduce confusion about the effectiveness of treatment. Nits within 1 cm of the scalp should be physically removed by a fine toothed comb. Using one of these agents prior to nit combing makes it easier to remove nits. Nits that are present on the hair shaft greater than 1 cm from the scalp are not considered to be viable and do not have to be removed. 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.

### **Alternative Methods**

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 and alternative methods are often perceived as being intrinsically safe, Fort Payne City Schools 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 natural products and/or alternative methods.

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.

**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.**

### **Treatment of the Environment**

- ✓ **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.

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



## 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.



## **Supportive Documents**

Beierle, Mary. "Head Lice in School: Don't be Nit Picky".

<http://www.d128.k12.il.us/downloads/student/health/nits.pdf>

Edwards, Julie. "Position Statement: Pediculosis in the School Community." National Association of School Nurses. July 2004. Web. 21 Feb. 2011. <http://www.nasn.org>

Frankowski B.L. & Weiner, L.B. "Head Lice". Pediatrics 110 (2002): 638-43. Print

Morton, Joseph B., comp. Alabama School Health Recommended Guidelines for the Control of Pediculosis in Schools. 24 Feb. 2006. Memorandum. Alabama State Board of Education, Montgomery.

Pollock, Richard. "Head Lice Information, Laboratory of Public Health Entomology, Harvard School of Public Health." Harvard School of Public Health - HSPH. 31 Jan. 2009. Web. 21 Feb. 2011.

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

Weisberg, Loretta. "The Goal of Evidence-Based Pediculosis Guidelines." NASN School Nurse (July 2009): 165-166. Print.

Centers for Disease Control (2001). Fact sheet: treating head lice. Retrieved April 21, 2005 from:

[http://www.cdc.gov/ncidod/dpd/parasites/headlice/factsht\\_head\\_lice\\_treating.htm](http://www.cdc.gov/ncidod/dpd/parasites/headlice/factsht_head_lice_treating.htm)

Policy, procedures, treatment guidelines and handouts were derived from:

[http://www.lynden.wednet.edu/18531042218276453/lib/18531042218276453/PoI\\_3417\\_Head\\_Lice\\_-\\_Nit.pdf](http://www.lynden.wednet.edu/18531042218276453/lib/18531042218276453/PoI_3417_Head_Lice_-_Nit.pdf)

[http://www.michigan.gov/documents/Final\\_Michigan\\_Head\\_Lice\\_Manual\\_103750\\_7.pdf](http://www.michigan.gov/documents/Final_Michigan_Head_Lice_Manual_103750_7.pdf)

<http://health.state.ga.us/pdfs/epi/zvbd/HEAD%20LICE%20manual.pdf>

Templeton, Tammy. RN, BSN "Tallapoosa County School Health Service Head Lice Manual."