PEDICULOSIS (LICE INFESTATION)

I. DEFINITION:

Infestation of the skin or hair by one or both of the two species of blood-sucking lice capable of infesting the human host.

II. ETIOLOGY:

A. *Pediculus humanus* var. *capitis* infests the hair and scalp of humans. Transmission occurs by direct contact with infested persons and possibly by sharing personal items, such as hats, combs, or brushes. Head lice affect all socioeconomic groups and are not related to poor hygiene. Outbreaks among children are common. Life cycle has 3 stages: (1) Eggs are called nits and are found cemented to the hair shaft near the scalp, if viable. (2) Nymphs hatch 7-12 days after eggs are laid and mature about 1-2 weeks later into adults capable of reproducing. (3) Adult lice can lay up to 10 nits a day and live for up to 30 days on a person’s head. Head lice do not survive more than 2 days away from the scalp, and the eggs cannot hatch at ambient temperatures less than that close to the scalp.

B. *Pediculus humanus* var *corporis* is the human body louse and, in general, infests persons with poor hygiene, i.e., homeless or transient persons who do not have access to baths and clean clothing. Transmission occurs by close contact with infested persons and by contact with contaminated fomites, i.e., clothing and/or bedding. Life cycle is similar to that of the other human louse species, although body lice can survive up to 5 - 7 days off the host making fomites a major source of transmission.

C. *Phthirus pubis* is the crab louse that infests most commonly the pubic area but may also be found in other hairy areas, including the chest, armpits, abdomen, thighs, or in the eyelashes of children. Adults are most often affected. Transmission occurs by skin-to-skin contact or through sexual contact. Eyelash infestation occurs almost exclusively in children and may be transmitted from other children or an adult. Consideration of other sexually transmitted diseases in infested persons as well as possible child sexual abuse is indicated. Life cycle is the same as other human louse species but more similar to the head louse in that the pubic louse also dies within a couple of days off the host.

D. All of these lice species feed on human blood. Only the body louse is a known vector for disease, i.e., typhus, trench fever and epidemic relapsing fever caused by *Borrelia recurrentis*.

E. Human lice do not infest animals so transmission from pets does not occur and treatment of pets is not indicated.

III. CLINICAL FEATURES

A. Head Lice

1. Intense itching of the scalp. May feel tickling sensation or something moving in the hair. May be asymptomatic.

2. Nits (ova) are translucent, white to yellow 0.5 mm oval objects firmly cemented to the hair shaft. Nits found farther than ¼ inch from the scalp are considered hatched, non-viable nits, or dead. Nits cannot be knocked off of the hair shaft or moved down the hair shaft, which helps to differentiate them from dandruff or debris from hair products, such as gels, sprays, etc.
3. The nymphs (immature forms) or adult lice may be seen and are most commonly found in the back of the head, behind the ears, and near the nape of the neck. Head lice are tan to grayish-white, 2-4mm in length, and have six legs terminating in claws.

4. Excoriation from scratching may cause weeping sores and matting of the hair.

B. Body Lice

1. Lice are rarely found on skin (only during feeding), but may be present in clothing.

2. Skin lesions are characterized by changes secondary to scratching and resultant lesions or furuncles.

3. Intense itching of the body.

C. Pubic Lice

1. Live lice or nits are found in pubic hair and occasionally in other coarse body hair, i.e., chest, abdomen, armpits.

2. May be found in the eyelashes of children.

3. Intense itching of affected areas.

4. Mild excoriation may occur secondary to scratching.

5. Maculae ceruleae, bluish or slate-gray colored spots, may be found in the pubic area or on the chest, abdomen, or thighs in cases of chronic or heavy infestation.

IV. MANAGEMENT PLAN:

 A. Treatment:

1. General

   a. Inform school authorities/childcare facility infestation has been identified without breaching confidentiality.

   b. Cleaning of the house and other rooms inhabited by infested persons should include machine washing and drying clothing, bed linens, and other personal items and vacuuming. Fumigation of the home or school is not recommended and results in needless risk of chemical exposure to inhabitants.

2. Treatment for Head Lice

   a. Issue over-the-counter pediculicide or recommend application of an over-the-counter pediculicide for clients 2 years old and older, or refer to physician. Consult with physician on treatment of children less than 2 years old. Instruct in application of over-the-counter pediculicide or medicated shampoo according to package directions (see Appendix 1). Instruct clients to avoid using crème rinse or combination shampoo with conditioner before using the lice shampoo, and to avoid washing the hair 1-2 days following treatment.
3. Treatment of Body Lice

a. Pediculicide is not indicated in the treatment of body lice. Treatment consists of improving hygiene and regular changes of clean clothes and bedding. Infested materials can be decontaminated by washing clothes in hot, soapy water as described below.

b. See consultation/referral section.

4. Treatment of Pubic Lice

a. The pediculicides used to treat *pediculosis capitis* (head lice) are effective for treatment of pubic lice. A second treatment is recommended 7 to 10 days later.

b. Topical pediculicides should not be used for infestation of eyelashes by pubic lice. The recommend treatment is an ophthalmic-grade petrolatum ointment applied to the eyelashes 2 to 4 times daily for 8 to 10 days.

c. Lice and their eggs can be removed manually, or the hairs can be shaved to eliminate infestation immediately.

d. See consultation/referral section.

5. Screening of Exposed Persons:

All family members and other close contacts should be examined for the presence of lice or active nits and treated, if indicated, at the same time as the affected individual. Those at greatest risk of infestation are persons who sleep with the infested individual.

6. Treatment of Infested Person’s Articles:

b. Nit (head lice egg) combs, often found in lice medicine packages, should be used to comb nits and lice from the hair shaft. Many flea combs made for cats and dogs are also effective.

c. After each treatment, checking the hair and combing with a nit comb to remove nits and lice every 2–3 days may decrease the chance of self-reinfestation. Continue to check for 2–3 weeks to be sure all lice and nits are gone.

d. Have the person put on clean clothing after shampooing.

e. If the first treatment was done correctly and live lice are still as active as before upon re-examination after 12 - 24 hours after treatment, treatment should be repeated immediately with a different pediculicide followed by a second application in 7 – 10 days.

f. Check hair every 2-3 days after treatment and use the comb to remove any nits or lice present.

g. Retreatment:

1) For permethrin (1%) OTC products, repeat treatment 7-10 days after initial treatment kills newly hatched lice if hair washed within one week of treatment or if live lice observed;

2) For pyrethrin-based products, repeat treatment 7 – 10 days after initial treatment to kill newly hatched lice.

h. Parents should be instructed to comb hair daily with a lice comb to check for lice for 2-3 weeks following treatment of lice.

i. Disinfect clothing/bedding as discussed below.

j. If parent/guardian chooses to utilize homeopathic treatments, stress the importance of combing daily to remove nits, larvae or live lice. Homeopathic treatments are not recommended by the health department.
a. Machine wash and dry all washable clothing and bed linens that have been in contact with an infested individual during the last 48 hours before treatment. Use hot water and detergent. Because heat is lethal to lice and nits, many personal articles can be disinfected by machine washing in hot water and drying using the hot cycle of the dryer. Nits and lice are killed at temperatures exceeding 130° Fahrenheit (F) for 5-10 minutes.

b. Personal articles of clothing or bedding that cannot be washed may be dry-cleaned or placed in a plastic bag and sealed for a period of 2 weeks. The latter method works because head lice die in about 48 hours without a blood meal, and nits kept at room temperature for 10 days do not hatch.

c. Soak combs and brushes in hot water (at least 130°) for 5-10 minutes.

d. Do not use fumigant sprays; they can be toxic if inhaled or absorbed through the skin.

e. All other items that have been in contact with the infested hair in the last 48 hours, such as curlers, headphones, earpieces of glasses, etc. should be thoroughly cleaned. An individual's combs, brushes, clothes, hats, coats, etc. should not be shared with anyone else at home or school.

B. Client Education:

1. Since transmission from one person to another commonly occurs, children and parents must be educated regarding the mode of transmission and procedures to take to prevent further transmission of lice infestation.

2. Lice are not transmitted from animals. Lice cannot jump or fly.

3. Caution parents against the use of pediculicides in the absence of infestation. Emphasize mechanical removal of nits and dead lice. Pediculicides are chemicals that can be harmful when used inappropriately.

4. Children should be taught not to share combs, brushes, or hats with other children.

5. Coats should be hung where they do not touch those of other people.

6. Parents need reassurance and counseling that head lice infestation is a common problem in the school-age group and affects children of all socioeconomic groups.

C. Consultation/Referral:

1. Consult with physician to treat children less than 2 years old.

2. If child has body or pubic lice, refer or consult with private physician for treatment procedures.

3. Contact social services according to OSDH reporting policy if neglect or abuse is suspected.

4. Contact school nurse if indicated to report infestation occurrence.

5. If live lice are still as active as before after 12 – 24 hours following retreatment with a different OTC medication, consult with Medical Director, APRN or refer to physician for treatment with prescription medication.

D. Follow-up:
1. Children with head lice can return to school after appropriate treatment has begun.

2. Student may return for recheck 12 to 24 hours after treatment has begun (optional). Clearance by a health professional to return to school is not required. **Note:** According to the CDC, the American Academy of Pediatrics (AAP) and the National Association of School Nurses (NASN):

   a. Students diagnosed with live head lice do not need to be sent home early from school; they can go home at the end of the day, be treated, and return to class after appropriate treatment has begun.

   b. “No-nit” policies should be discontinued for the following reasons:
      1) Nits are cemented to the hair shafts and are unlikely to be transferred to others.
      2) Many perceived “nits” located more 1/4 inch from the scalp are actually “casings”.
      3) No-nit policies create unnecessary absenteeism to the students, families and communities which outweigh the risk associated with head lice.

3. Determine tracking priority utilizing professional judgment.
<table>
<thead>
<tr>
<th>PRODUCT NAME</th>
<th>INGREDIENT</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nix Cream Rinse* · *, +++</td>
<td>Permethrin, 1%</td>
<td>OTC</td>
</tr>
<tr>
<td>A-200, Pronto, R&amp;C, Rid, Triple X, generic/store brands* · *, +++</td>
<td>Pyrethrins, 0.3%</td>
<td>OTC</td>
</tr>
<tr>
<td>Ovide, Derbac-M, Prioderm, Quellada-M ++++</td>
<td>Malathion 0.5%</td>
<td>Prescription</td>
</tr>
<tr>
<td>Ulesfia ++++</td>
<td>Benzyl alcohol lotion 5%</td>
<td>Prescription</td>
</tr>
<tr>
<td>Sklice, Heartgard, Stromectol ++++</td>
<td>Ivermectin oral or lotion 0.5%</td>
<td>Prescription</td>
</tr>
<tr>
<td>Natroba, Comfortis, Trifaxis ++++</td>
<td>Spinosad 0.9%</td>
<td>Prescription</td>
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* A single treatment is usually adequate because of this product’s ovicidal activity; nonetheless, some experts advise a second treatment 7-10 days after the initial treatment.

+ Product should not be used by individuals allergic to ragweed.

++ Treatment of choice if used during pregnancy.

+++ Product should not be used if hypersensitive to any synthetic pyrethroid (i.e. Permethrin), pyrethrins, chrysanthemums or ragweed.

++++ Follow package instructions for administration and contraindications.

NOTE: Various other trade name products may be available in certain areas. The pharmacist may be consulted as to availability of listed products as well as comparable products.

PRECAUTIONS AND WARNINGS:

- None of these products are to be taken internally: if swallowed, seek medical attention.
- If products come in contact with eyes, flush with large amounts of water immediately.
- If skin irritation occurs, consult with a physician.
REFERENCES:


APPENDIX 2
CERTIFICATION FROM HEALTH PROFESSIONAL (OPTIONAL)

Name of Student: _____________________________________________________________________

Date of Examination: __________________________________________________________________

According to the CDC, the American Academy of Pediatrics, and the National Association of School Nurses, students diagnosed with live head lice do not need to be sent home early from school; they can go home at the end of the day, be treated, and return to class after appropriate treatment has begun. “No-nit” policies that require a child to be free of nits before they can return to school should be discontinued for the following reasons:

- Many nits are more than ¼ inch from the scalp which generally makes them unviable and unlikely to hatch to become crawling lice. These are then known as “casings”
- Nits are cemented to hair shafts and are very unlikely to be transferred successfully to other people.
- Misdiagnosis of nits is very common during nit checks conducted by nonmedical personnel.
- The burden of unnecessary absenteeism to the students, families and communities far outweighs the risks associated with head lice.

Recommendation:
(Check one)

- Student presented for evaluation and treatment of head lice. Student may return to school once treatment has begun and return for recheck after 12 – 24 hours.

- Student presented for recheck for head lice after appropriate treatment was completed. No live lice were observed. Student may return to school.

- Student presented for recheck for head lice after initial or repeat treatment was completed. Re-treatment was recommended for persistent lice. Student may return to school once re-treatment has begun and return for recheck after 12 – 24 hours.

Comments:_________________________________________________________________________

Name and Title of Health Professional:___________________________________________________