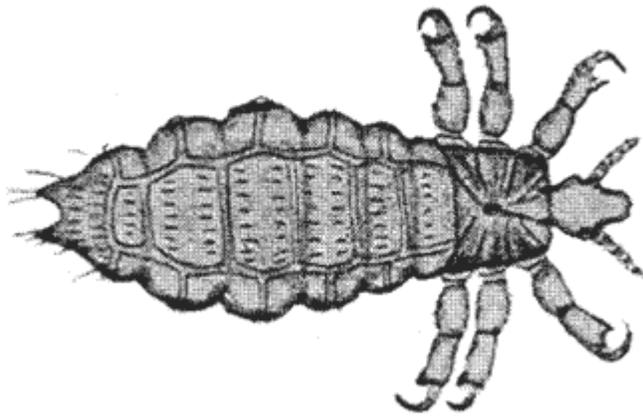
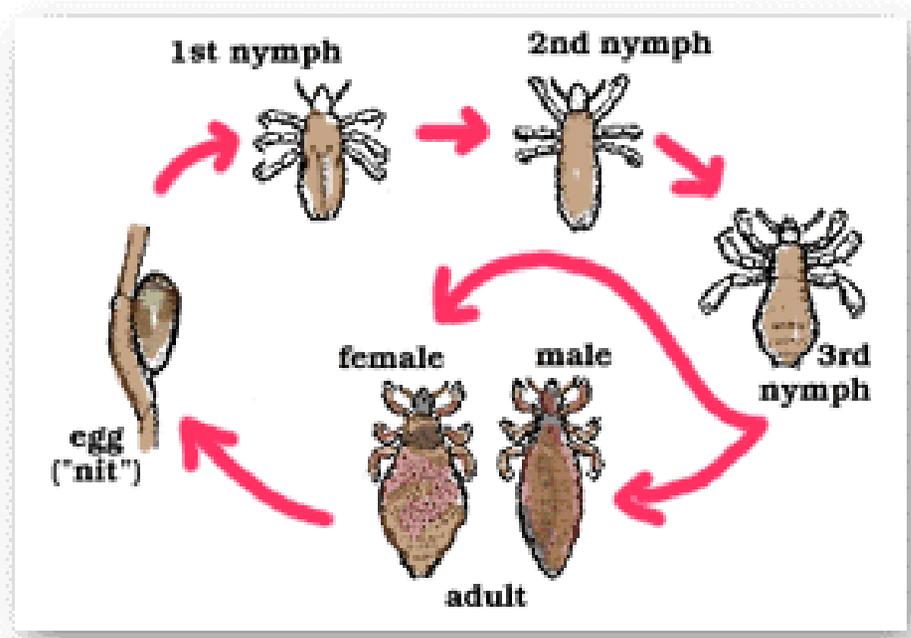


OH NO!
COOTIES



www.headlice.org



Head Lice (Pediculosis)

- Infestation of the hair on the scalp by *Pediculus humanus capitus*, or the human head louse
- Live by biting and sucking blood from the scalp
- Problem common in schools and institutions
- 6-12 million people worldwide are infested each year
- Three forms of lice: nit, nymph, and adult

THE LIFE CYCLE OF HEAD LICE

Pediculus humanus capitis

5. THIRD MOULT
TEN DAYS
AFTER
HATCHING

4. SECOND MOULT
FIVE DAYS
AFTER
HATCHING

3. FIRST MOULT
TWO DAYS
AFTER
HATCHING

6. EMERGING FROM THEIR
THIRD MOULT AS ADULT
LICE, THE FEMALE AND
SLIGHTLY SMALLER MALE
BEGIN TO REPRODUCE

7. FEMALE LAYS FIRST
EGG 1 OR 2 DAYS
AFTER MATING

2. LOUSE EMERGES
AFTER 6-7 DAYS

8. FEMALE LAYS
APPROXIMATELY 4 TO 8
EGGS FOR THE NEXT
16 DAYS

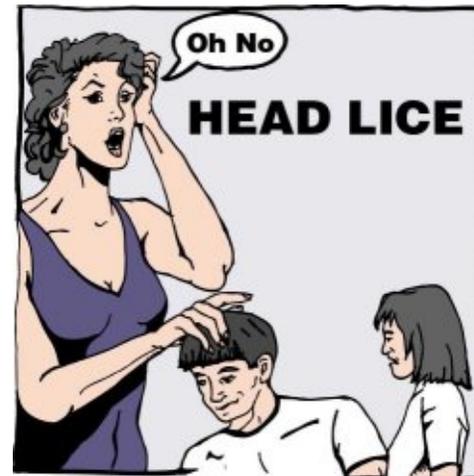
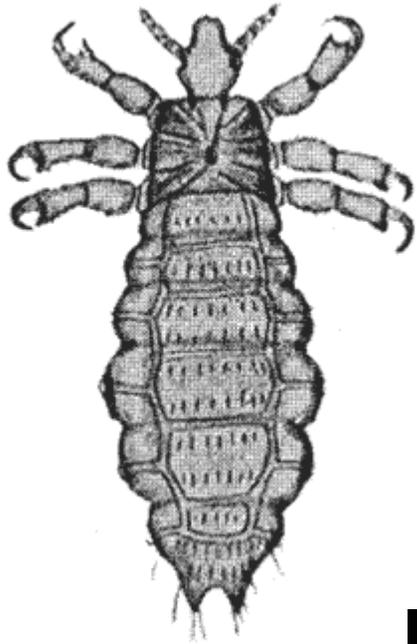
1. EGG IS LAID ON
HAIR SHAFT. EGG IS
CALLED "NIT"

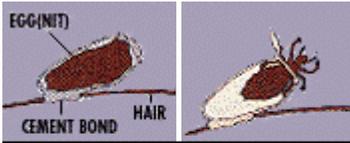
9. HAVING LIVED 32 TO 35
DAYS SINCE BEING
LAID AS A NIT
THE LOUSE DIES

NITPICKERS
HEAD LICE EDUCATION & PREVENTION

Epidemiology of Head Lice

- Worldwide distribution
- Females are infested more often than males
- More common in Caucasian and Asian hair; uncommon in African-American hair
- Transmitted by direct contact with an infested person or with any object used in their hair (hairbrush, hat, pillow).
- Rarely found on the body, eyebrows, or eyelashes.



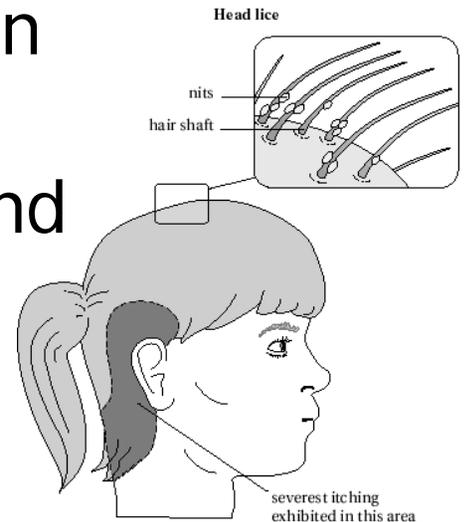
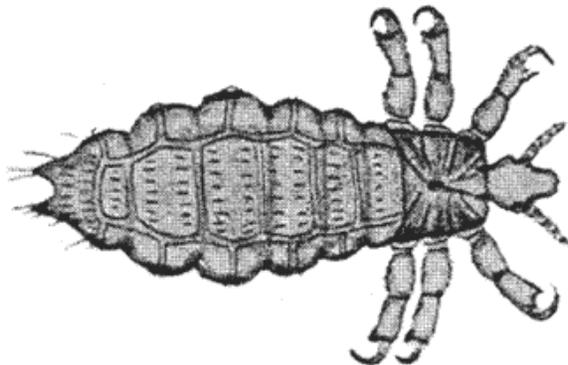


A nit is as small as the period at the end of this sentence.

Epidemiology of Head Lice

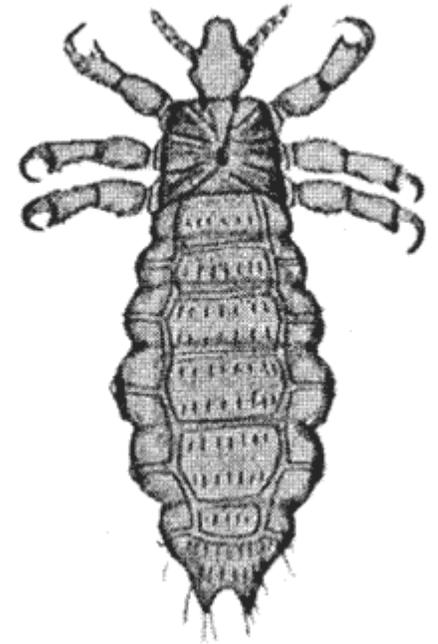
Diagnosis

- Inspection of the hair for all three forms of lice
- If nits are found more than $\frac{1}{4}$ inch from the scalp, it is likely an old infestation and does not need to be treated
- Found on the scalp behind the ears and near the neckline at the back of the neck

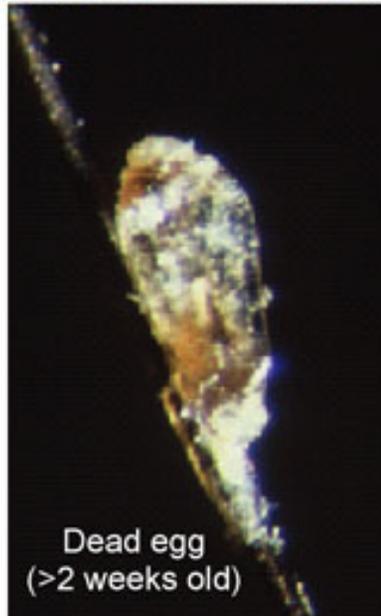
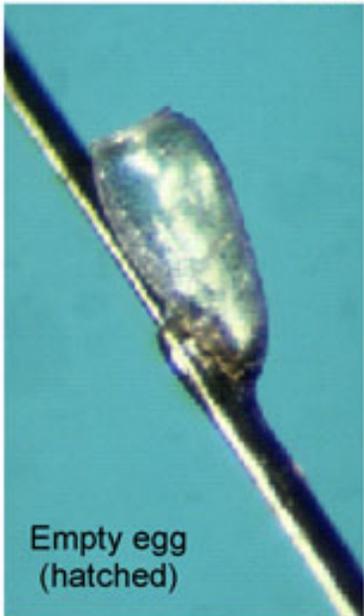


Images to assist in the identification of head lice and their eggs.

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



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Epidemiology of Head Lice

Period of Communicability

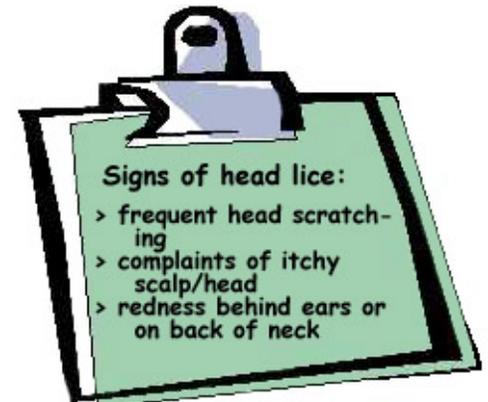


- As long as lice or eggs remain alive on the infested host or on fomites.
- Nits can live on clothing for 1 month
- Nymphs can survive 24 hours without a food source
- Adult louse lives ~1 month, but can only survive a few days without a food source
- Female louse can lay up to 150 nits/month

Symptoms of Head Lice



- Tickling sensation on scalp
- Severe itching
- Excoriation of the scalp
- Secondary bacterial infection due to excessive scratching



Treatment for Head Lice - Overview



- Over the counter options: treatment failures are common, second treatments are usually necessary
 - Permethrin (Nix)
 - Pyrethrins (Rid, Pronto, A-200)
- Prescription options, highly effective at killing lice, can have side effects, resistance is a problem
 - Lindane
 - Malathion (Ovide)
 - Ivermectin (topical application, investigational use)
- Dry/Wet combing method- Numerous treatments are needed, but method is less toxic
 - Consists of coating the hair with conditioner and dragging a fine tooth comb from scalp to ends. Requires no pediculicide



GDPH NURSE PROTOCOL FOR HEAD LICE



THERAPEUTIC PLAN: PHARMACOLOGIC

1. Permethrin 1% cream rinse (nonprescription NIX). Do not use NIX on pregnant females, infants less than 2 months old, or on patients who are allergic to synthetic pyrethroid or pyrethrin, any of its components or chrysanthemums.
 - a) Apply NIX to shampooed, rinsed and completely dried hair and wash off after 10 minutes. (Do not apply to damp hair.)
 - b) Comb with a fine-tooth comb to remove nits and re-evaluate scalp for secondary infection.
 - c) Repeat application in ≥ 7 days if live lice are seen. Re-treatment for recurrences is required in less than 1% of patients.

Treatment with NIX may temporarily exacerbate pruritus, erythema, or edema. Clients may experience mild transient burning/stinging, tingling, numbness, or scalp discomfort. If any reaction persists, refer client to a private care provider.

To prevent accidental ingestion, NIX should be stored in a locked area out of reach of children.

GDPH NURSE PROTOCOL FOR HEAD LICE

THERAPEUTIC PLAN: PHARMACOLOGIC

2. Alternate treatment - Pyrethrins with piperonyl butoxide (e.g., nonprescription A-200, RID, Clear, Pronto) apply enough solution to completely wet hair, add water to lather, wait 10 minutes and rinse thoroughly with warm water. Use fine-toothed comb to remove lice and eggs from hair, shampoo hair to restore body and luster. Repeat application in 7-10 days.

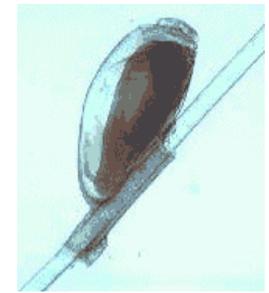
For infestation of the eyelashes/eyebrows, apply petrolatum ointment (aka-vaseline) to eyelid margins BID for 8-10 days, followed by removal of nits.

Mild topical antipruritic/anti-inflammatory cream or ointment may be obtained over-the-counter for itching.

Evidence of secondary infection requires systemic antibiotic treatment. The patient should be assessed for impetigo treatment or physician referral.



GDPH NURSE PROTOCOL FOR HEAD LICE



THERAPEUTIC PLAN: NON-PHARMACOLOGIC

1. As an alternative to pediculocides, as prevention following exposure to head lice, or when previous treatments appear to have been unsuccessful:
 - a) To dry hair, apply a generous amount of olive oil, vaseline, mayonnaise, any vegetable oil, or baby oil to the scalp. Massage well to distribute over all the hair.
 - b) Cover the head with a shower cap and leave the oil on overnight, or at least 8 hours.
 - c) In the morning, or after 8 hours, comb the hair with a regular comb to remove any tangles.
 - d) Comb with a nit comb through very small sections of hair. Be sure to wipe the comb often.
 - e) When all nits have been removed, shampoo hair. A second application of shampoo may be necessary to remove all of the oil.
 - f) Dry the hair as usual. Blow dryer temperatures can kill lice.
 - g) Check carefully for nits by parting off small sections of hair and looking under a very bright light.
 - h) If done properly, there is no need to repeat. All lice should be suffocated, and all nits removed.

GDPH NURSE PROTOCOL FOR HEAD LICE



THERAPEUTIC PLAN: NON-PHARMACOLOGIC

2. Remove nits with comb or tweezers. To aid in removal, soak hair with a 1:1 white vinegar - water solution. Cover the hair with a warm moist towel for 30-60 minutes, then comb. A product called "Step 2" which contains formic acid may be used to facilitate nit removal. Formic acid dissolves the cement that attaches the nit to the hair. It is applied to the hair after the pediculocide, left on for 10 minutes, then rinsed.

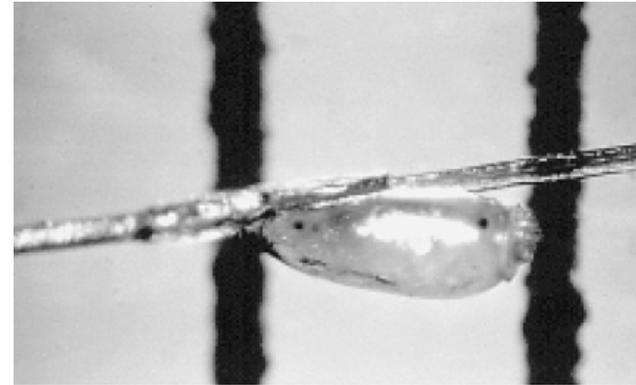
Clothes and linens used during the previous few days should be washed or dry-cleaned. Any item that cannot be washed or dry-cleaned should be stored in a plastic bag for two weeks.

Soak brushes, combs and hair accessories in hot water with pediculocide shampoo or alcohol for an hour.

Vacuum mattresses, pillows, upholstered furniture, and carpeting. Discard the vacuum cleaner bag. **Fumigation of the home is not recommended.**

GDPH NURSE PROTOCOL FOR HEAD LICE

1. Avoid unnecessary re-treatment because of the toxicity hazard.
2. Children can return to school following initial treatment.
3. Itching may persist for 1-2 weeks even after adequate treatment, and should not be considered a reason for reapplication of medication.
4. Educate about the person-to-person mode of transmission, and procedures to prevent transmission.
 - a) Do not share combs, brushes or head gear/coverings with other persons.
 - b) Hang coats where they do not come into contact with those of other persons.



Instruct caregiver that child may return to daycare or school the next day after first treatment for head lice. **It is not recommended that child be excluded from school based on the presence of nits.**

GDPH NURSE PROTOCOL FOR HEAD LICE

FOLLOW-UP

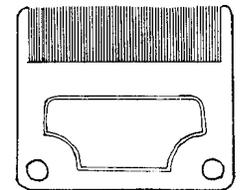


1. Reevaluate in one week if symptoms persist.
2. Re-treatment may occasionally be necessary. Use an alternate regimen if not responding to treatment.



Control Measures for Head Lice - At Home

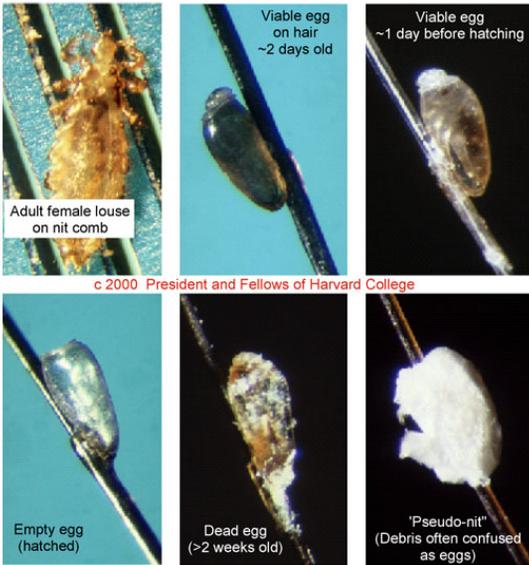
- Examination of household and close personal contacts
- Treat all infested persons
- Clothing, bedding, and fomites should be laundered in a washing machine (hot cycle), dry cleaned, or treated with insecticide if they have been touched by the infested person during the 2 days before treatment
- Store all clothing, stuffed animals, bedding, etc., that cannot be washed or dry cleaned in plastic bag; seal for 2 weeks
- Vacuum floors and furniture
- Soak combs and brushes for 1 hour in alcohol, Lysol or wash with soap and hot water



SUMMARY

What to do when head lice are suspected.

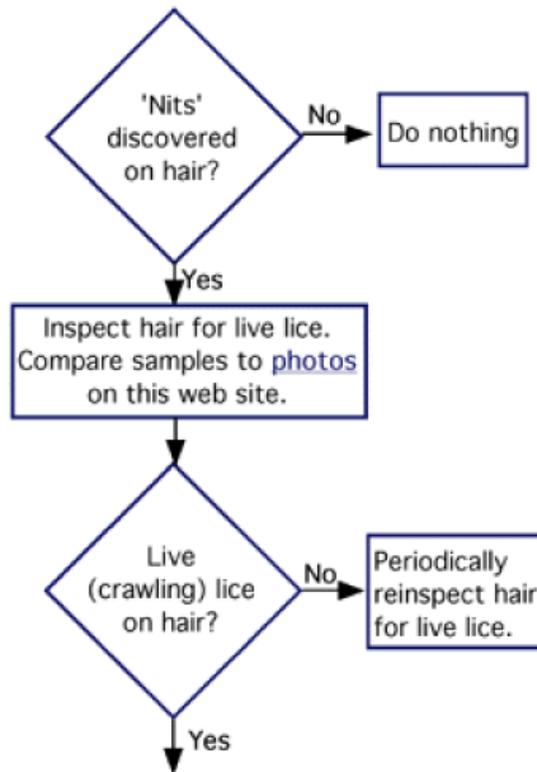
Images to assist in the identification of head lice and their eggs.
<http://www.hsph.harvard.edu/headlice.html>



Scheme for managing presumed head louse infestations in schools



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



RECOMMENDED RESPONSES ✓

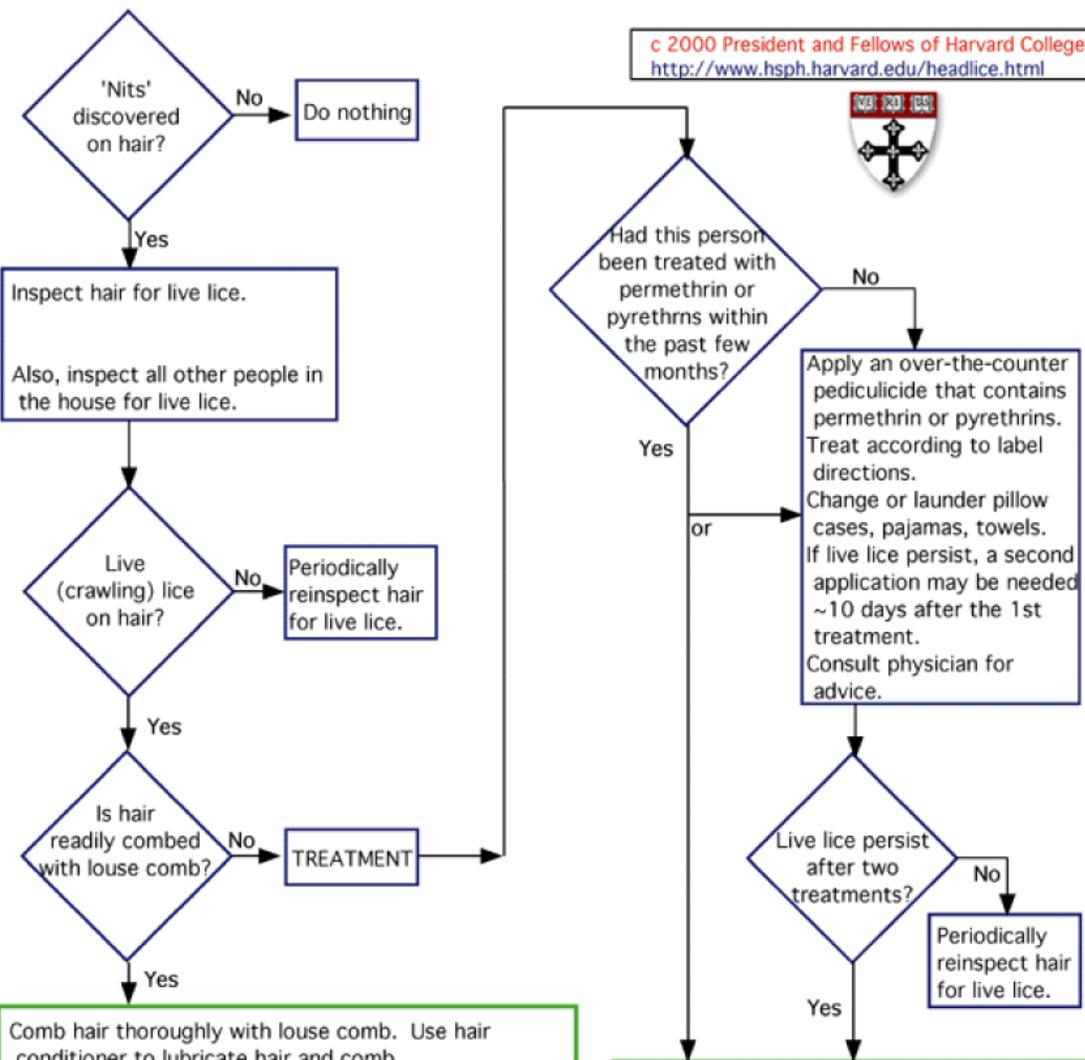
Notify parent/guardian at the end of the day of the suspected infestation.
Provide information on the biology of head lice and methods to eliminate infestations.

Unnecessary Responses

- Exclusion or quarantine.
- Mass screenings.
- Insecticide treatments to school environment.
- Reporting case to youth/social services.
- Bagging of clothes.
- Restricted use of headphones or athletic gear (helmets).

Scheme for managing presumed head louse infestations

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

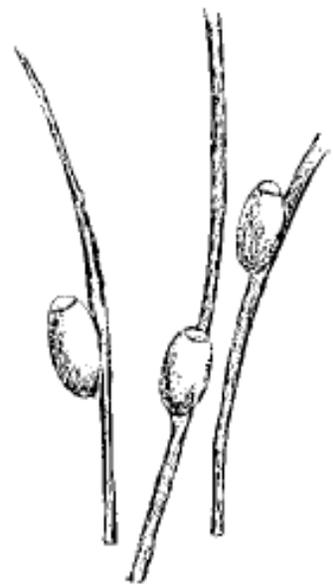


Comb hair thoroughly with louse comb. Use hair conditioner to lubricate hair and comb. Most lice should be removed during this first combing. Repeat every day or every few days. Each subsequent combing will remove a portion of the remaining lice and some that may have hatched in the interim. Continue daily combing until no live lice are discovered for about 1 1/2 weeks. Treatment with pediculicides may supplement or replace combing. Removal of remaining nits is a personal choice, as these are likely to be all dead or hatched. Change or launder pillow cases, pajamas, towels.

Consult physician. Consider prescription pediculicides (malathion or lindane). Obtain, read, understand and follow label directions. DO NOT OVERTREAT. Removal of remaining nits is a personal choice, as these are likely to be dead or hatched. Change or launder pillow cases, pajamas, towels.

SUMMARY

Scheme for handling head lice.



Resistance to Treatment for Head Lice

- Patterns of resistance vary geographically
- Resistance to Permethrin, Pyrethrin, and Lindane have been noted
- No evidence of the effectiveness of herbal/natural remedies



Lindane

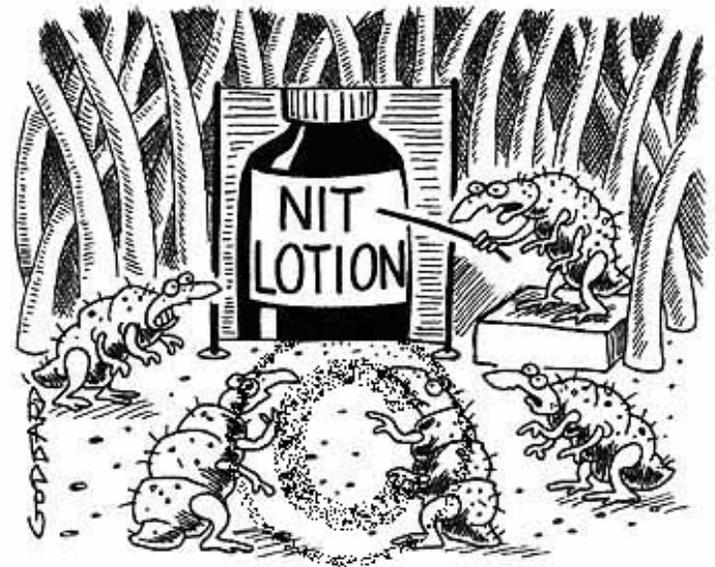


- Treatment used for both scabies and head lice infestations
- Serious side effects including seizures and deaths have been reported to the FDA in patients who use too much Lindane or after a second treatment with Lindane.
- Avoid after a bath. Should not be used by persons with extensive dermatitis, pregnant or lactating women and children younger than 2 yrs.

Lindane should be used only if:

- ✓ Cannot tolerate other safer treatments, or
- ✓ Other safer treatments did not work

For further information on Lindane:
<http://www.fda.gov/cder/drug/infopage/lindane>



"Reconnaissance pictures clearly show the enemy's chemical stockpile."

PARENT/GUARDIAN EDUCATION

Date

Dear Parents/Guardians,

Increasing Parental Awareness of the Problem

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,



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

CHICAGO - In a new clinical report, the American Academy of Pediatrics (AAP) attempts to clarify diagnosis and treatment of head lice and makes recommendations for dealing with this condition in school. Among its recommendations, the AAP says **no healthy child should be excluded from, or allowed to miss school because of head lice**, and that "no nit" policies for return to school should be discouraged. Numerous anecdotal reports exist of children missing weeks of school and even being forced to repeat a grade because of head lice. Although not painful or a serious health hazard, head lice are the cause of much embarrassment and misunderstanding, many unnecessary days lost from school and work, and millions of dollars spent on remedies.



The AAP recommendations for treating head lice also include:

1. School personnel responsible for detecting head lice should be appropriately trained, as it can be difficult to diagnose.
2. Permethrin 1 percent (an insecticide) is currently the recommended treatment for head lice.
3. Head lice screening programs in schools do not have a significant effect on the incidence of head lice, and are not cost-effective. **Parent education programs may be a more appropriate management tool.**

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.

10 Days to Freedom from Head Lice

Day 1

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

Day 2

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

Day 3

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

Day 4

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

Day 5

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

Day 6

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

Day 7

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

Day 8

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

Day 9

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

Day 10

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



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