

# Head Lice

## Recommendations for Teachers

### What do head lice look like?

Head lice are small insects; approximately 2 to 4 mm long (approximately the size of a sesame seed). They have six legs and are usually tan to grayish white in color. They do not have wings and cannot fly. Likewise, they cannot jump, but they move very quickly in the hair.

### What is the life cycle of a head louse?

- The head louse feeds every 3 to 6 hours by sucking blood and simultaneously injecting saliva.
- After mating, the adult female louse can produce five to six eggs per day for 30 days, each in a shell (a nit) that is 'glued' to the hair shaft near the scalp.
- The eggs hatch nine to 10 days later into nymphs that molt several times over the next nine to 15 days to become adult head lice.
- The hatched empty eggshells (nits) remain on the hair, but are not a source of re-infestation.
- Nymphs and adult head lice can survive for up to three days away from the human host.
- While eggs can survive away from the host for up to three days, they require the higher temperature found near the scalp to hatch.

### How serious are head lice?

Unlike body lice, head lice are not a health hazard, a sign of poor hygiene, nor do they spread disease. However, they are a nuisance and cause a high level of anxiety.

### What are the health implications of head lice?

Head lice are not responsible for the spread of any disease. People may experience itching because they are reacting to bites of the head louse. Rarely, scratching may cause skin infections that can be treated with antibiotics.

Because lice infestations are so benign, treatments must prove safe to ensure that the adverse effects of therapy are not worse than the infestation.

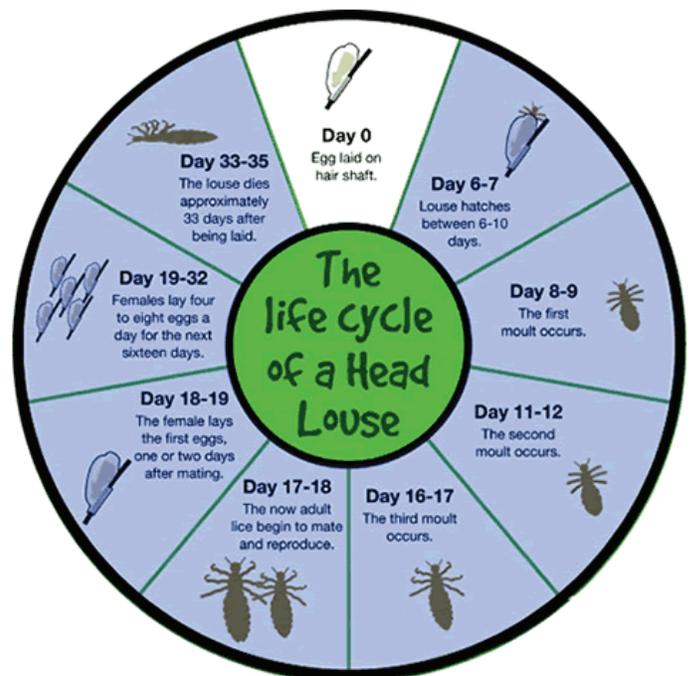
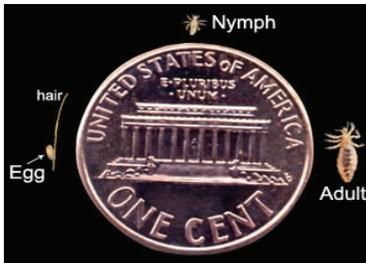


Image courtesy of Pharmacy Direct

## What do nits (eggs) look like?

Nits are attached to the shaft of the hair close to the scalp with a glue-like substance. They are not easily removed and will not fall or shake out of the hair. Nits that have already hatched are often more visible than eggs that have not because they appear white in color against dark hair. Nits that have not hatched blend into the hair color of the infested person. Nits are found more easily at the back of the head along the hair line.



<http://www.liceremovallosangeles.com/Pictures-of-lice-and-nits.html>

## How do you establish that a person has head lice?

Determining that a person has head lice requires the detection of live head lice. Detection of nits alone does not indicate active infestation.

Infested children usually carry fewer than 20 mature head lice (more commonly, less than 10 head lice), each of which, if untreated, live for three to four weeks.

Misdiagnosis and over-diagnosis are common. Studies have found that many presumed "lice" and "nits" submitted by physicians, nurses, teachers, and parents to a laboratory for identification were found to be artifacts such as dandruff, hairspray droplets, scabs, dirt or other insects (e.g., aphids blown by the wind and caught in the hair).

## What if nits are found but we cannot find live lice?

The presence of nits indicates a past infestation that may not currently be active.

Over 75% of children with nits and no live lice do not develop active infestations. Even with optimal scalp conditions, 10-30% of nits do not hatch (Nova Scotia, 2008).

Without the ability to distinguish potentially viable from nonviable nits, conclusions on the potential for active infestation by nit detection alone are not reliable. Treatment should never be initiated unless there is a clear diagnosis of head lice (i.e., a live louse is found).

Additionally, health care providers and lay personnel have frequently over-diagnosed and misdiagnosed head lice. Many failed to distinguish active from extinct infestations, particularly if they were relying only on nit detection.

## Is there a way to determine if nits are viable or not?

Although nits are attached to the hair shaft close to the scalp when they are laid, the distance from the scalp when the nit is found is not a good predictor of an active infestation.

Having nits close to the scalp does not necessarily indicate that a live lice infestation has occurred or will occur. A study in the USA found that children with 5 or more nits within 0.6 cm of the scalp were more likely to develop an infestation than those with fewer nits (32% versus 7%). However, only 1/3 of all children with 5 or more nits within 0.6 cm of the scalp developed an active infestation.

## What is the best way to find live lice?

Combing with a fine tooth lice comb has been shown to be four times more effective than and twice as fast as direct visual examination for the detection of live head lice.

The following steps are effective in detecting head lice:

1. Apply ample conditioner to dry hair, enough to soak from the scalp to the end of the strands.
2. Remove tangles with a regular comb.
3. Start behind the ears and comb the hair section by section. Separating the hair with hair clips is helpful.
4. Place the lice comb against the scalp and pull to the end of the hair.
5. Check the comb for lice after each pull.
6. Wipe the comb with a tissue each time and look for lice.
7. Place the tissue in a bag.
8. Check all the hair over the entire head.
9. Repeat combing for every part of the head at least 5 times.
10. Once finished, tie the bag with the soiled tissues and throw it in the garbage.
11. If lice are detected and treatment is required, make sure that all conditioner is washed from the hair prior to treatment.

### **What are the symptoms of head lice?**

A person may experience a tickling feeling on their head. When lice bite the scalp, they may cause itching. With a first case of head lice, it can take up to 4-6 weeks for a person to become sensitized to the louse saliva and experience itching. Itchiness can develop within 24-48 hours of future infestations.

Itching is not a good predictor of treatment failure as a number of the treatment products can cause scalp irritation which may cause itching.

## **Prevention**

### **What is the best way to prevent head lice?**

The major focus on control activities should be on reducing the number of lice on the head and to lessen the risk of head-to-head contact.

### **How do head lice spread?**

Transmission in most cases occurs by direct contact with the head of an infested individual. Indirect spread through contact with personal

belongings of an infested individual (combs, brushes, hats, etc.) is much less likely but may occur rarely. This is because a louse found on these items is likely to be injured or dead and a healthy louse is not likely to leave a healthy head unless there is a heavy infestation.

### **What measures should be taken to prevent spread of head lice in the classroom?**

It is good practice to discourage head-to-head contact among children on a regular basis, especially since a case of head lice can go undetected for quite some time.

## **Screening**

### **What sort of screening should be done routinely in schools?**

Screening in schools has not been shown to be effective. In a study done of 1,729 school children screened for head lice, only 31% of the 91 children with nits had simultaneous live lice. Only 18% of those with nits alone converted to having an active infestation during 14 days of observation.

### **If a case of head lice is detected in my classroom, should I check all the children's heads?**

It is not necessary to check the children's heads. It is recommended to send a letter to the parents of the children so they can check their child's head at home. It is important to maintain confidentiality when communicating to parents about head lice and to be sensitive to the stigma that others may associate with individuals with an active infestation.

Misdiagnosis is common, so it is important to provide parents with information on how to check their child's head, what to look for, and what the appropriate management is if they find live lice. A study was done to evaluate how often school children were inappropriately diagnosed and treated:

- Children without active infestation were treated almost as often as children with active infestations (62% versus 70%).

- Non-infested children were excluded from school because of presumed lice infestation more frequently than were children who were infested.

### **How often should parents be instructed to check their child’s hair?**

Parents should be encouraged to check their children’s heads for live lice regularly. It may be beneficial to do an inspection once a week throughout the school year, before and after a sleepover experience, and daily during an outbreak.

### **Exclusion**

#### **I don’t want an issue of head lice in my classroom – can I exclude the child until they have been treated?**

Head lice infestations have been shown to have low contagion in classrooms. Children with an active infestation have likely had the infestation for one month or more by the time it is discovered and poses little risk to others from the infestation. Children should remain in school, but be discouraged from close direct head contact with others.

#### **If a child has head lice, why aren’t they sent home?**

A child with an active head lice infestation likely has had the infestation for a month or more by the time it is discovered and poses little risk to others from the infestation. Studies have shown that children without active infestations were excluded from school because of presumed lice infestation more frequently than were children who were infested.

#### **What about “no nit” policies?**

“No nit” policies in schools are not recommended as they lack a rational medical basis. Anecdotal information about a school that had a zero tolerance program reported an average of 20 missed days per student dismissed for infestation.

Individuals may choose to remove nits for the following reasons:

- nit removal can decrease diagnosis confusion;
- can decrease the possibility of unnecessary re-treatment;
- can decrease the risk of self re-infestation.

### **Treatment**

#### **Who should receive treatment?**

Anyone with an active infestation of head lice (live lice) should receive a treatment that is appropriate for them.

#### **What are approved treatments?**

Health Canada recommends treatment with a topical insecticide (pyrethrins, permethrin 1% or lindane) or a recently approved non-insecticidal product called Resultz®. The treatment course for each of these products involves an initial application followed by a second application in 7 days.

#### **Why is a second treatment required in 7 days?**

Most approved treatments will kill the lice, but are not effective against the nits. A second treatment in 7 days will kill the lice that have hatched since the first treatment before they are mature enough to lay new eggs.

#### **Why not automatically treat all household and classroom members for head lice?**

Misdiagnosis and over treatment are common. When a case of head lice is detected in a classroom, parents of other children should respond by checking their children’s heads on a regular basis and treat only when live lice are detected.

Treatments involve chemicals that will kill the lice. It is not recommended to expose individuals to these chemicals unless they have live lice because of the potential for side effects. Additionally, there is a concern that over-use of medications could increase the potential for the head lice to develop resistance to the products making treatment choices more limited.

## **Do the lice “zapper” combs, such as Robi Comb™ work?**

There have been no randomized controlled studies performed with the electronic or bug zapping combs. Their use is not recommended. These “bug zapper” combs seem to offer little advantage over a well-designed traditional louse comb. Their instructions warn not to use on individuals with seizure disorders or a pacemaker.

## **How do I know if I need to treat again?**

All approved products recommend treating again in 7 days with the same product. If live lice are found within 24-48 hours of the first treatment, the individual should be treated again with a different product. This product should be used again in 7 days for the second treatment.

## **How do I know if the treatment is working?**

Effective treatment will eliminate live lice. Most products have residual effects so live lice may be found shortly after the first application. If live lice are found 24-48 hours after the first treatment, the first treatment was ineffective and a second product should be used.

Most products are not effective against nits and they will continue to hatch. This means that live lice may be found close to a week following the first treatment. This does not mean the first treatment was ineffective, but rather that the lice are newly hatched and will be susceptible to the second application of the treatment that is required 7 days after the first. This second treatment will kill the immature lice before they are able to lay eggs.

## **Why isn't the treatment working?**

Head lice treatment products have specific directions to ensure they are working properly. Depending on the product, this may mean it should be applied to wet hair or dry hair. It may mean that regular shampoo should not be used for a defined period of time after treatment or there may be restrictions on the use of conditioners. Some products must be left on the hair for a specific period of time. It is very

important to read and follow the instructions carefully to ensure the product will be most effective.

## **What about the other treatments that people say work (mayonnaise, essential oils, etc.)?**

A number of household products, such as mayonnaise, petroleum jelly, olive oil, tub margarine and thick hair gel, have been suggested as treatments for head lice. Application of a thick coating of such agents to the hair and scalp left on overnight will theoretically occlude lice spiracles and decrease respiration. However, these products show little killing of lice and are less effective than topical insecticides. There are no published trials on the safety or efficacy of these home remedies.

Other products such as gasoline or kerosene are flammable, toxic and dangerous. While a number of ‘natural’ agents, such as tea tree oil and aromatherapy, have been used for the treatment of head lice, efficacy and toxicity data are not available for these agents. One small study in Israel noted that a natural product, which contained coconut oil, anise oil and ylang ylang oil, applied to hair three times at five-day intervals, was as successful as the control pediculicide.

These treatments may in fact interfere with the approved head lice treatment and are therefore not recommended for that reason as well.

## **What kind of cleaning is recommended for the classroom?**

Excessive cleaning is not warranted since head lice do not live far away from the scalp, and nits are unlikely to hatch at room temperature.

Australian studies found that when carpets were examined from 118 classrooms, no lice were found despite more than 14,000 live lice found on the heads of 466 children using the classrooms.

## What kind of cleaning is recommended for the household?

Cleaning of items in prolonged or intimate contact with the head (e.g., hats, pillowcases, brushes and combs) may be warranted. Washing the item in hot water, drying in a hot drier for 15 minutes or storing will kill lice and nits. Alternatively, storing the items in an occlusive plastic bag for two weeks or in the deep freeze for 24 hours will also kill lice and nits. Excessive cleaning in the house is not necessary since head lice and nits cannot survive for long periods of time away from a host.

## Does shaving work?

Shaving the head may be effective in removing head lice and nits, but is not recommended for the psychological impact that this may have on the child.

## What are the side effects of the treatments?

Each product has different risks and side effects. It is important to review each product

before choosing one to determine if there are contraindications for use (either based on age of the individual, medical conditions, including pregnancy or breastfeeding, or history of allergies).

Reactions range from scalp irritation including itching or burning sensation, to allergic reactions to the products, to possibility of neurotoxicity and seizures.

## What if a child cannot receive a treatment because of age or medical condition? What should a parent use on them?

It is recommended to consult with a health care provider to determine which product is most appropriate based on individual circumstances.

Consultation with a Public Health Nurse is suggested if treatment with a chemical-based product is contraindicated or is not feasible.

## References

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