

# Management of Persons with Pediculosis

Head lice infestations do not contribute to health risks for individuals or the public. The most serious consequence is the social cost of missed school days and the associated cost of lost productivity and wages of parents who must care for children sent home from school. Better diagnosis, more appropriate use of pediculicides, and the elimination of no-nit policies will improve the overall management of head lice infestations.<sup>20</sup>

## Preliminary Preparation

### Preparation for treatment

- Thorough combing and brushing of hair over a white towel or sheet will further assist with removal of lice and nits before treatment.
- White hair conditioner may be applied to dry hair, covering root to tip. Immediately after application, a head lice comb is used and the combings wiped onto tissue paper and examined for lice or eggs.<sup>21</sup> However this conditioner should be thoroughly removed if lice treatment is necessary.
- Wash hair thoroughly with a plain shampoo (without additives) or dish detergent. Additives may coat the hair shaft and prevent the pediculicide from being effective.
- Read directions on pediculicide product carefully.
- **Nit removal is an important step in the management of head lice.**

## Recommended Treatment

### Two treatments, seven days apart, with a known effective product

Because of the prevalence of resistance and the relative insensitivity of eggs to treatment, a second application of permethrin or pyrethrins should be applied seven to ten days after the first treatment.<sup>22</sup>

Some developing louse larvae may survive initial treatment. A second course of treatment is recommended 7 to 10 days later.<sup>28</sup>

### Treatment of Head Lice:

- Lice infestations are most effectively managed with pediculicides.<sup>20</sup>
- There appears to be no satisfactory method to get rid of an infestation apart from chemical treatment with an insecticide, which acts on the central nervous system of the louse.<sup>5</sup> Although very safe when used as directed, these chemicals are potentially toxic for humans also.
- All treatments should be applied to the scalp as per product instructions. No product should be applied to open or locally infected skin. Apply evenly and down to scalp.
- **All treatments should be applied at 0 and 7–10 days after diagnosis to ensure all nits are killed, as no treatment is 100% effective the first time.**
- Persons with special medical problems such as skin diseases or a convulsive disorder should discuss treatment with their physician.
- Pregnant and breastfeeding women should wear waterproof (rubber, latex, vinyl, etc.) gloves when providing treatment.<sup>17</sup>

### 1. 1% Permethrin products

**NIX® (Creme Rinse) and Kwellada-P®**  
Permethrin products have extremely favourable side-effect profiles and are safe when used according to instructions<sup>23</sup>

**NIX®:** contains 1% permethrin (a synthetic pyrethroid) and 20% isopropanol with several stabilizers, fragrance and a dye. The active ingredient is permethrin, which is more stable to light than the natural pyrethrins (derived from chrysanthemums). Permethrin works by paralyzing and killing lice in the same manner as pyrethrins. Less than 2% of the dose is absorbed, and this is rapidly inactivated. Claims of continuing residual activity for two weeks post-treatment are controversial.

The safety profile of permethrin is favourable, with low risk for mammalian toxicity.<sup>23</sup>

**Contraindications:** Persons who are sensitive to chrysanthemums, ragweed, or who have reacted to NIX® or other permethrin-containing products in the past. NIX® is not licensed for use in infants or pregnant women and should only be used in these persons where the benefits outweigh the risks. It is not known whether NIX® is excreted in breast milk; therefore women who are breast-feeding should stop temporarily if NIX® is used.

**Adverse Reactions:** Adverse reactions are infrequent and limited to itching or other transient scalp discomfort in about 1% of users.

**Directions for use of NIX®:**

- Use on conditioner-free shampooed hair, towel dried
- Apply 30 – 60 cc and leave in for 10 minutes
- Don't use conditioner for 7 days after treatment as it may deactivate NIX.

**Kwellada-P®- Crème Rinse:** A synthetic pyrethroid with a broad spectrum of insecticidal activity combined with high potency when applied to insects, including head lice.

**Directions for use of Kwellada-P®:**

- Use on wet, shampooed hair
- Apply 25 – 50 ml and leave in for 10 minutes
- Available in 50 and 200 ml bottles, comes with plastic nit comb.

## 2. Pyrethrin products

**R+C (Shampoo)®, Pronto®, Licetrol®, Lice-Enz® Mousse:** The active ingredients in these products are naturally - occurring pyrethrins, found in chrysanthemums.

**Contraindications:** R+C is safe to use in pregnant and breastfeeding women, and children under two years of age. The safety and efficacy of the other products in these same populations has not been determined. Pyrethrin products are contraindicated in persons with known allergy to ragweed, chrysanthemums and other pyrethrin products.<sup>3</sup>

**Adverse Reactions:** Side effects are rare, and mainly mild. Pyrethrins irritate mucous membranes and may cause allergic dermatitis. There have been reports of corneal damage, and more rarely, anaphylaxis.<sup>3</sup>

**Note:** R+C® is available in both 50 ml and 200 ml formats and has the nit comb enclosed.

**Pregnant and lactating women and children under two:** R+C® can be used to treat pregnant and lactating women and children under two years. The individual should discuss the treatment choice with his/her physician, pharmacist, or public health nurse.

**Directions for use of pyrethrins:**

- Use on dry hair
- Apply 25 ml and leave in for 10 minutes
- Repeat in 7 – 10 days

## Alternative Treatments

Use natural alternatives with caution as data are not available and there is no scientific evidence of effectiveness<sup>19</sup>

- 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.<sup>18</sup>
- Tea tree oil – safety of use in infants is unknown and efficacy and toxicity data are not available.
- Acid shampoos, 5% acetic acid, vinegar (diluted 1:1 with water), conditioners and vegetable oils make it easier to detach the eggs from the hair. There are however, no nit removal remedies on the market that have been tested under clinical conditions.<sup>24</sup>

## Treatment for use in special circumstances only

**Resultz®:** A hair rinse that contains: isopropyl myristate 50% and ST-cyclomethicone 50%.

### Directions for use of Resultz®:

- Indicated for treatment in clients 4 years of age and older.
- Should be applied to dry hair.
- Left on for 10 minutes and rinsed with warm water.
- Should be reapplied after 7 days.<sup>27</sup> Review of the results of clinical trials show that this product looks promising, but the evidence of efficacy is not strong enough to recommend it, except in special circumstances (e.g., over treatment with head lice products, possible resistance to pediculicides, etc.).

## Nit Removal

Thorough removal of nits is recommended as it makes it easier to see any new infestations. It also helps avoid unnecessary treatments due to false identification of a reinfestation (i.e. old, dead nits) by an untrained eye. Removal of nits has not been proven to be necessary to prevent spread. Most nits more than 7 mm from the scalp, down the hair shaft, are likely empty eggs.<sup>5,6</sup>

### Suggestions for nit removal:

- Removal of nits with a louse-comb is easier when the hair has been wetted with water.
- Use a fine-toothed comb or a steel nit comb (see below).
- Back combing hair may loosen nits.
- Applying a solution of 1:1 vinegar and water directly to the hair for 15 minutes may also loosen nits.

### A fine-toothed louse comb can be used for:

- The diagnosis of louse infestation.
- As an accessory to treatment with a pediculocide.
- Removal of nits.

### Steel Nit Comb:

- May be more effective with nit removal than a plastic comb.
- Anecdotal reports by Public Health Nurses suggest Nit Free Terminator comb and Lice Meister comb are quite effective when used jointly with pediculicides.

## Environmental Cleaning

- Wash items that have come into contact with the infested person's scalp such as combs, brushes, headgear, pillowcases, shirts/tops with collars, and towels in hot water. The heat of the water (49°C) or the hot cycle of the clothes dryer will kill any live lice and nits.
- Items, which cannot be laundered, should be dry-cleaned, or placed in a plastic bag, sealed, and left for 10 days. They can also be frozen for 48 to 72 hours. This measure conforms to the life cycle of the louse, and will ensure that any lice or nits on these items are no longer viable. Disinfect combs, hairbrushes, barrettes, etc., in hot water (>54°C) or pediculicide for 5 – 10 minutes.
- Environmental decontamination or extra housecleaning measures and use of insecticide sprays are not needed.<sup>1</sup>
- Because lice die 1 – 2 days once off the host, nits that hatch away from the head die in a few hours if no new host is found.<sup>16</sup>

## Head Lice Resistance

It is important, although often difficult, to distinguish between treatment failure, true resistance and reinfection. Unfortunately overuse and misuse have produced treatment-resistant lice.<sup>23</sup> Contributors to increasing resistance include misdiagnosis and improper use of pediculicides.<sup>25</sup>

## Exclusion from School/Day Care and No Nit Policy

### No Nit Policy

- Children may return to school or day care after treatment with a known effective product. Exclusion from school for 24 hours after treatment is not required.
- Immediate exclusion upon diagnosis is not necessary; the child may go home at the end of the school day.
- Exclusion due to the detection of "nits" does not have sound medical rationale.<sup>18</sup>
- Whether live lice are visible or not, there is no scientific evidence to justify exclusion of students from school because of head lice and/or viable nits.<sup>26</sup>
- Children who are found to have live lice are no more infectious on the day of diagnosis than they have been prior to the discovery.<sup>26</sup>

## Management of Contacts of Head Lice

Household and other close contacts should be examined for lice. If they are infested, they should be treated.

## Role of Parent/Guardian

As with other diseases, head lice management is the responsibility of the parent, not the school or other agency. Detection of head lice is best managed by the parents checking their children's heads on a regular basis 12 months a year.

## Role of Public Health

Public Health may provide education, support and resources to parents, schools, day cares and others. Nurses become involved in problem solving or providing consultation on difficult cases (e.g., repeated infestations despite numerous treatments, highly anxious or distraught parents).

### Case Finding:

- Routine school screening by public health is not recommended.
- The school should advise parents at the beginning of each year that head lice are common in school and that they have an important role in early detection and management.

### Administrative Management:

- Immediate exclusion is not necessary. Children with head lice should be given a letter to take home informing parents of the diagnosis, the follow-up and the treatment required.
- Parents of other children in the schoolroom or bus, or the entire school if the problem appears to be widespread, should be informed that a child with head lice has been identified in the school.
- Where there are difficulties in buying a pediculicide or in carrying out the required steps, the public health nurse can problem-solve with the family.
- A child should not miss school because of treatment for head lice.
- Children do not have to be "nit-free" in order to return to school.

### Communication:

- Communication with parents is extremely important in limiting the negative public response to head lice. This includes information about the control measures in specific situations.



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