

Head Lice Management Guidelines

*Child, Youth and Family Community Health
September 2017*

Head Lice Management Island Health

Table of Contents

Introduction	2
Island Health Position Statement	3
 <u>Appendices</u>	
Appendix A What Parents and Caregivers Can Do, What the School Can Do, What the Public Health Nurse Can Do.....	4
Appendix B Head Lice Facts.....	5
Appendix C A Word on Combs	6
Appendix D Wet Combing	7
Appendix E How to Get Rid of Head Lice: Wet Combing.....	8
Appendix F Medicated Head Lice Products	10
Appendix G Head Lice Awareness School Newsletter Insert	11
Appendix H Reasons Treatment May Not Have Been Effective.....	12
Appendix I Treatment Not Currently Recommended.....	14
Appendix J Resources.....	15
Contact Information.....	16
References	17

Introduction

Head lice are common, especially among children between the ages of 3 to 12. Head lice do not spread any diseases, but itching can develop in infested individuals. Personal hygiene or cleanliness in the home, school, or community has nothing to do with getting head lice. Anyone who has hair can get head lice.

Head lice cannot hop or fly; they are primarily transmitted when the head of an infested individual comes in direct contact with the head of another. The identification, management and treatment of head lice shall be a cooperative endeavour between the family and the school community with primary responsibility of checking and treatment resting with parents or caregivers. At all times, schools must safeguard the protection of privacy of students. It is important to protect the privacy of students with head lice as reactions can significantly interfere with a child's emotional well-being, social status in the classroom and ability to learn.

Island Health Position Statement

Island Health recommends children continue to be included in all school activities when lice is suspected or confirmed.

Rationale:

Lice may be present on the scalp for weeks before they are discovered. Children are often in the school for days or weeks before head lice are detected; therefore there is no benefit to school exclusion.

Island Health recommends head lice screening be performed in the home by the family using the wet combing method to improve accuracy and maintain confidentiality.

Rationale:

- Lice can be spread among students at school screenings by checking students one after the next.
- Heads should be checked using the wet combing method which is not practical in a school setting.
- Live lice move very quickly on dry heads and can be easily missed on a dry head check.
- The presence of nits does not indicate an active infestation.
- It is difficult to differentiate between nits and empty egg casings.
- Fluff or dandruff in the hair is often mistaken for nits leading to high rates of misdiagnosis.
 - A misdiagnosis leads to unnecessary use of chemical head lice products (pediculocides).
 - Overuse of chemical head lice products can be hazardous to a child's health.
 - Overuse of chemical head lice products can lead to lice that are resistant to the products.
- Less than 50% of individuals scratch their scalp when they have head lice.
- Even under ideal conditions, 10-30% of nits do not hatch.
- Children identified as having head lice may be subjected to teasing and bullying.

Island Health recommends families are informed of the benefits and risks of treatment methods.

Rationale:

- There are various treatments available to treat head lice.
- Treatments range in efficacy, barriers, and potential side effects.

Appendix A

What Parents and Caregivers Can Do...

- Learn how to check for live lice using wet combing and be aware of the recommended treatment options (Appendix D and E).
- Check the heads of all family members for head lice weekly using the wet combing method.
 - It is possible to have head lice more than once; therefore weekly wet combing checks help identify head lice re-infestations.
- If live lice are found using the wet combing method, treat only family members with live lice.
- Encourage your children not to share hair accessories, hats, combs, brushes, or anything that comes in contact with your child's head.
- Remind family and friends about the importance of routine head checks.
- Tie back long hair to help avoid getting head lice.

What the School Can Do...

- Prevention
 - Include the *School Newsletter Insert* regularly in parent communication (Head Lice Awareness School Newsletter Insert)(Appendix F)
 - Provide *Wet Combing* handout (Appendix D)
 - Provide information about head lice and head lice management during kindergarten orientations
- Additional cleaning in the school is not required. Lice that come off the head are either already dying and have fallen off or they are injured and cannot hold onto hair anymore. (Devore et al. 2015 & Pontius, 2014)

What the Public Health Nurse Can Do...

In the school:

- Discuss management of head lice in collaboration with the school principal, staff and parents as needed.
- Provide online and/or print resources to support head lice prevention and treatment as needed.

Island Health Public Health Unit Contact Information

www.viha.ca/locations/health_units/

Appendix B

Head Lice Facts

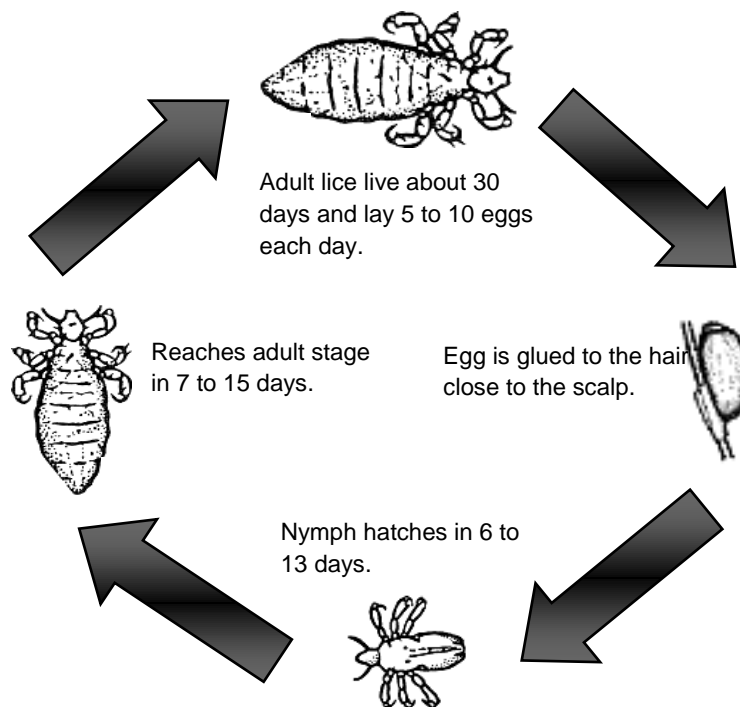
Adapted from the Canadian Pediatric Society Position Statement (Canadian Paediatric Society 2016)

Head lice are wingless, 2 mm to 4 mm long (adult louse), six-legged, insects that live and feed on the scalp of humans. They do not jump or fly. They do not carry or spread disease. Head lice are not a sign of poor hygiene.

A child usually carries fewer than 20 mature head lice, each of which, if untreated, live for 3 to 4 weeks. Head lice stay close to the scalp for food, warmth, shelter and moisture. Head lice can move quickly on dry hair, so they are difficult to see. The head louse feeds every 3 hours to 6 hours by sucking blood and simultaneously injecting saliva. These bites can sometimes make the scalp itchy.

After mating, the adult female louse can produce 5 to 10 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 6 to 13 days later into nymphs that molt several times over the next 7 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 3 days away from the human host.

Head lice are spread by direct head-to-head contact with someone who has head lice, or to a lesser extent by sharing combs, brushes or hats.



Appendix C

A Word on Combs

Regular combs will not remove head lice and nits.

- **Lice combs** have more space between the teeth than **nit combs**. Ideal lice combs have teeth beveled at the end to ensure they can rest flat on the scalp. The teeth of the comb should be just wider than the hair (Handbook of the Non Drug Intervention [HANDI] Project Team, 2013) with less than 3mm between the teeth (Bohl B, 2015).
- **Nit combs'** teeth have less space between the teeth and **are not necessary for wet combing**. Nit combs may make the process of wet combing more challenging.
- Plastic combs must have all the teeth present and straight, otherwise lice are bypassed as the broken comb is dragged through the hair.
- Metal combs may barb and pull out hair.

There is a lack of research regarding effectiveness of “zapper combs”, i.e. Robicomb.

Combs are available at some public health units and pharmacies.

Appendix D

Wet Combing

This method is recommended to check everyone in the household weekly for head lice. **Current research supports this as the most effective method to identify head lice** (Goldstein & Goldstein 2015; Kurt et al. 2105; Simmons, 2015; Jahnke et al. 2009). Additional information on the Wet Combing technique is available in Appendix D.

Wet combing is recommended as a way to manually remove live lice, breaking their life cycle and ending the infestation (Ibarra 1992; Ibarra, 1995; Hill, Moor et al. 2005). By combing out the live lice every 3-4 days, any newly hatched louse will be removed before it is able to reach adulthood and lay more eggs.

Advantages:

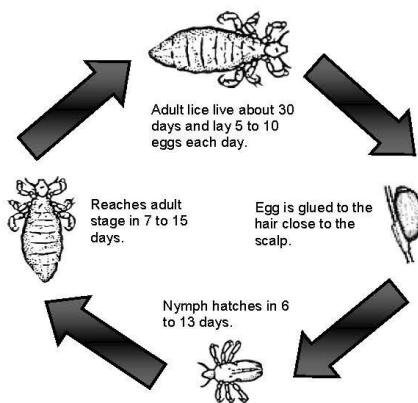
- Safe for all ages
- Non-toxic (does not contain insecticide)
- Suited to use with individuals with asthma and scalp wounds
- Safe for women who are pregnant and/or breastfeeding
- Affordable
- Easily incorporated into basic hygiene practices
- Benefit of parent and child spending time together
- This method has no possibility of resistance developing

Appendix E



HOW TO GET RID OF HEAD LICE WET COMBING

LIFECYCLE OF THE HEAD LOUSE



HEAD LICE FACTS

- ◆ Lice are tiny insects about the size of a sesame seed.
- ◆ Anyone with hair can get head lice.
- ◆ Lice do not have wings and cannot fly or jump.
- ◆ Lice move quickly in dry hair and this makes them hard to see.
- ◆ Lice do not live long once they are off the head. They only lay eggs close to the scalp.
- ◆ Having head lice does not always make the scalp itchy.
- ◆ Lice commonly move to other heads when heads touch and rarely by sharing hairbrushes and combs.

- ◆ Lice are common where children play or work closely together.
- ◆ Once a lice egg has hatched, the empty eggshell stays stuck to the hair.
- ◆ If you find an eggshell more than half an inch away from the scalp, it is most likely empty.
- ◆ The eggshells are white and look like dandruff but cannot be brushed or blown away.

WHEN TO CHECK

- ◆ Regularly ONCE A WEEK after shampooing
- ◆ If your child's playmates have head lice
- ◆ When a family member has head lice
- ◆ When a person is scratching his or her head more than usual

WHAT YOU NEED

- ◆ Shampoo and white-coloured conditioner (low-priced is fine)
- ◆ Wide-tooth comb to untangle hair
- ◆ Towels and paper towels
- ◆ Lice comb - we recommend a narrow comb with fine teeth and slanted tips, such as a "Bug Busting" comb, that makes it easier to remove lice.
- ◆ Lice combs are available at many Public Health Units and pharmacies.

HOW TO CHECK FOR LICE



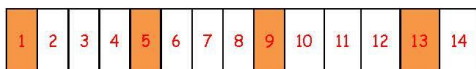
1. Wash and rinse hair.
2. Put enough conditioner on the hair to cover the whole scalp (usually about 2 handfuls).
3. Use a wide-toothed comb to get tangles out.
4. Begin combing the head carefully with the lice comb. While you are combing over the head, **keep the teeth of the comb touching the scalp at all times.**
5. Checking can be done with the head forward over the sink, combing from the back of the head to the front, or from a sitting position going from the front of the head to the back.
6. Pull the comb through the hair in one stroke. If the comb tugs, add more conditioner.
7. After each stroke, wipe the comb on a paper towel and look for lice.
8. Make sure to comb the entire head, checking for lice after each stroke.

If you find any lice, move onto the treatment process.

IF YOU FIND LICE

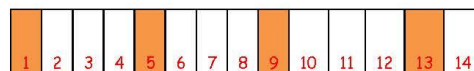
- ◆ Hats, pillowcases, combs and hairbrushes that have had contact with the head in the previous 2 days could be considered for cleaning in hot soapy water.
- ◆ Clean the supplies that you used for checking for lice in hot soapy water.
- ◆ You **DO NOT** need to spend time cleaning the house.

Use this chart to keep track of the days (shaded areas) that you need to comb and condition.



TREATMENT (IF YOU FIND LICE)

1. With the conditioner still on, pull the comb through the hair in one stroke from the front to the back of the head. Keep the teeth in contact with the scalp for the entire stroke.
2. After each stroke, rinse the comb in warm water. Check the comb for lice before you pull it through the hair again to make sure you do not put lice back onto the head.
3. Keep combing over the entire head until you find no more lice.
4. Rinse the hair to remove conditioner. Leave the hair wet.
5. Untangle the hair with a wide-tooth comb to take out the knots.
6. Comb the whole head again with a lice comb, rinsing the comb after each stroke to make sure there are no more lice.
7. Keep repeating the steps **every 4 days** for a **full two weeks** to make sure that new lice are removed as the eggs hatch.



8. If lice are found on the fourth combing, add one more combing in 4 days.

For more information, contact your local Health Unit:

www.viha.ca/locations/health_units/

Child, Youth and Family Community Health
P-1001-01-17 – Revised 2017-08-30

Appendix F

Medicated Head Lice Products

Only treat family members where a live louse was seen during wet combing.

Chemical treatments are made to kill head lice and may or may not kill eggs. **Resistance has made many medicated insecticide products less effective in recent years when used alone.** (Bohl et al., 2015; Diaz, 2015; Gellatly, 2016; Greener, 2016; Wadowski, 2015; Yoon, 2014)

To minimize body exposure to a topical insecticide following application to the scalp, rinse well using cool water taking care to avoid unnecessary skin exposure to the product – do not sit the child in the bath water as the hair is being rinsed (Canadian Paediatric Society, 2016). If you choose to use a chemical head lice product, ensure all the conditioner and hair product has been thoroughly washed out of hair.

As many of the chemical lice products are different, the following are important to ensure proper use:

1. **Ask a pharmacist for guidance with head lice products.**
2. **Follow the instructions on the box.**
3. **Be sure to check the box for the number of treatments required.**

Appendix G

Head Lice Awareness School Newsletter Insert



HEAD LICE AWARENESS

Head lice are common in BC communities. Although they are a bother, **head lice are not a health risk.**

Head lice spread quickly by close, head-to-head contact. Lice cannot live on furniture or carpet, and they cannot jump or fly. There may be few or no symptoms, but itching may occur.

You can help by:

- ◆ Checking your child's head with the wet combing method of detection once a week throughout the year.
 - ◆ Review the pamphlet *Wet Combing – How to Get Rid of Head Lice*, available online, at your school and [Public Health Unit](#).
- ◆ Encouraging your child to wear their hair tied back.
- ◆ Treating if you notice live lice on your child's head.
- ◆ Reminding family and friends about the importance of routine head checks.

For more information:

- ◆ Read the HealthLink BC File on Head Lice [HealthLink BC File #06 Head Lice](#)
- ◆ Contact your local [Public Health Unit](#)

Appendix H

Reasons Treatment May Not Have Been Effective

Wet Combing

- Sufficient conditioner is required for effective treatment.
- The entire head needs to be combed through with a lice comb in small sections.
- The comb must be wiped off or rinsed after every pass through the hair to remove lice.
- A lice comb with teeth spaced just wider than the hair shaft is needed to remove all lice.
- The comb needs to maintain contact with the scalp for each pass through.
- The entire process must be **repeated every 4 days for at least 2 weeks** to remove all lice.
- If live lice are found on the 4th combing at 2 weeks, add an additional combing 4 days later.

Medicated Products

- The head lice may be resistant to the chemical product. (Use Wet Combing Method to look for lice.)
 - Documented cases of resistance to some chemical products have been documented across Canada, in up to 97% of head lice (Yoon, 2014).
 - If live lice are still active on the head after properly using medicated product, lice may be resistant.
 - If lice are resistant, use the wet combing method to remove lice.
- Hair was wet. Some products are only effective when applied to dry hair.
 - Head lice close their breathing holes when exposed to water; therefore the chemicals can't penetrate and kill lice.
- Hair had not been recently shampooed or had styling product in it. The head lice products require hair that is clean and absent of product prior to treatment.
 - Conditioners, shampoos with built-in conditioner, and hair product (gel, spray, etc.) can coat the hair and make it more difficult for chemicals in the medicated shampoo to work properly.
- Sufficient product was not applied to thoroughly cover all hair. To increase effectiveness, comb product through.
 - Thicker, longer hair will need more product.
 - Ensure all hair at the neck and behind ears are covered.
- Head lice product was rinsed too early. Leave product on as long as recommended but no longer (consult product box).
- The eggs weren't removed while using chemical products.
 - No product is 100% effective.
 - Remaining eggs can hatch in 6-13 days.

- The head lice product is too old.
 - Check expiry dates.
 - The active chemicals in products may weaken over time.
- The second medicated product was not provided in the required 7-10 days.
 - No product kills 100% of eggs, and eggs hatch in 6-13days.

Misdiagnosis

- There may not have been live head lice. Fluff and dirt are often mistaken for head lice, and an itchy scalp may be due to other causes.

Another infestation (re-infestation) has occurred after treatment

- Re-infestation results from head to head contact with a person who has lice.
- If hair is clear 10 days after treatment, then head lice are found later, re-infestation has probably occurred.
- Consider talking to others to see if they have checked their families for head lice.
- If you suspect re-infestation, ensure all members of your household are checked using the wet combing method and treated for head lice on the same day.

Appendix I

Treatments Currently Not Recommended

The following are not safe and do not work:

- Insect Sprays
- Motor oil
- Gasoline
- Alcohol
- Flea soap
- Dyes
- Bleaches
- Chinese Chalk Insecticide
- WD40
- Kerosene

The following do not have enough scientific evidence to support use; therefore not recommended:

- Olive oil
- Vinegar
- Mayonnaise
- Melted butter
- Margarine
- Vaseline
- Robi Comb
- Follicel
- Cetaphil
- Shaving gel
- Hair gel
- Heat applied to the scalp
- Garlic
- Essential Oils (i.e. Pine, Tea Tree, Thyme, Rosemary, Eucalyptus, Chick Chalk, etc.)
- Shaving the head
- Heated air

Appendix J

Resources

HealthLink BC Files: Head Lice (Dec 2016)

www.healthlinkbc.ca/healthfiles/pdf/hfile06.pdf

BCCDC A Quick Guide to Common Childhood Diseases

www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/Other/Epid_G_F_childhood_quickguide_may_09.pdf

Canadian Paediatric Society Position Statement (Sept 2016)

www.cps.ca/en/documents/position/head-lice

Island Health: Head Lice

www.viha.ca/health_info/lice.htm

Contact Information

<p><u>Campbell River Health Unit</u> 200-1100 Island Highway Campbell River, BC V9W 8C6 Phone: 250.850.2110</p>	<p><u>Nanaimo - Princess Royal Family Centre (Public Health)</u> 260 Irwin Street Nanaimo, BC V9R 4X5 Phone: 250.739.5845</p>	<p><u>Saanich Health Unit</u> 3995 Quadra Street Victoria, BC V8X 1J8 Phone: 250.519.5100</p>
<p><u>Comox Valley Health Unit</u> 961 England Avenue Courtenay, BC V9N 2N7 Phone: 250.331.8520</p>	<p><u>Nanaimo - Communicable Disease Program</u> Beaufort Centre 8-1599 Dufferin Crescent Nanaimo, BC V9S 5L5 Phone: 250.740.2616</p>	<p><u>Salt Spring Island Health Unit</u> #1 - 137 Crofton Road Salt Spring Island, BC V8K 2R8 Phone: 250.538.4880</p>
<p><u>Duncan Health Unit / Margaret Moss Health Unit</u> 675 Canada Avenue Duncan, BC V9L 1T9 Phone: 250.709.3050</p>	<p><u>Oceanside Public Health Services</u> (formerly Parksville/Qualicum Health Unit) PO Box 339, 494 Bay Avenue Parksville, BC V9P 2G5 Phone: 250.947.8242</p>	<p><u>Sooke Health Unit</u> #104 – 6672 Wadams Way Sooke, BC V9Z 0H3 Phone: 250.519.3487</p>
<p><u>Esquimalt Health Unit</u> 530 Fraser Street Victoria, BC V9A 6H7 Phone: 250.519.5311</p>	<p><u>Peninsula Health Unit</u> 2170 Mount Newton X Road Saanichton, BC V8M 2B2 Phone: 250.544.2400 Outer Gulf Islands Toll-free Phone: 250.539.3099</p>	<p><u>Tofino and Ucluelet Public Health</u> Coastal Family Place 265 First Street, PO Box 1078 Tofino, BC V0R 2Z0 Phone: 250.725.4020</p>
<p><u>Gold River Health Centre</u> 601 Trumpeter Drive Gold River, BC V0P 1G0 Phone: 250.283.2626 ext. 3</p>	<p><u>Port Alberni Public Health Services</u> 4227 6th Avenue Port Alberni, BC V9Y 4N1 Phone: 250.731.1315</p>	<p><u>Tuberculosis Prevention & Control Office</u> 1952 Bay Street Victoria, BC V8R 1J8 Phone: 250.519.1510</p>
<p><u>Ladysmith Health Unit</u> 1111-4th Avenue, PO Box 10 Ladysmith, BC V9G 1A1 Phone: 250.739.5777</p>	<p><u>Port Hardy Health Unit</u> 7070 Market Street Port Hardy, BC V0N 2P0 Phone: 250.902.6071</p>	<p><u>Victoria Health Unit</u> 1947 Cook Street Victoria, BC V8T 3P7 Phone: 250.388.2200</p>
<p><u>Lake Cowichan Health Unit</u> 58 Cowichan Avenue W PO Box 590 Lake Cowichan, BC V0R 2G0 Phone: 250.749.6878</p>	<p><u>Port McNeill Health Unit</u> 1775 Furney Place Port McNeill, BC V0N 2R0 Phone: 250.956.4711</p>	<p><u>West Shore Health Unit</u> 345 Wale Road Victoria, BC V9B 6X2 Phone: 250.519.3490</p>
<p><u>Nanaimo Health Unit (Public Health)</u> 1665 Grant Avenue Nanaimo, BC V9S 5K7 Phone: 250.755.3342</p>		

References

- BC Centre for Disease Control. (2009). *A quick guide to common childhood diseases*. Retrieved from http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/Other/Epid_GF_childhood_quickguide_may_09.pdf
- Birkenmoe, T., Lindstedt, H. H., Ottesen, P., Solong, A., Naess, O., & Rukke, B. A. (2016). Head lice predictors and infestation dynamics among primary school children in Norway. *Family Practice*, 3(1), 23-29. doi:10.1093/fampra/cm081
- Bohl, B., Evetts, J., McClain, K., Rosenaur, A., & Stellitano, E. (2015). Clinical Practice Update: Pediculosis Capitis. *Pediatric Nursing*, 227-234
- Burgess, I. F. (2014). How long do louse eggs take to hatch? A possible answer to an age-old riddle. *Medical and Veterinary Entomology*, 28, 119-124. doi:10.1111/mve.12026
- Burke, S., & Mir, P. (2011). Pediculosis causing iron deficiency anaemia in school children. *Archives of Diseases in Childhood*, 96(10), 989
- Combescot-Lang, C., Vander Stichele, R. H., Toubate, B., Veirron, E., & Mumcuoglu, K. Y. (2015, February 27). Ex vivo effectiveness of French over-the-counter products. *Parasitol Res*. doi:10.1007/s00436-015-4363-9
- Concern Community Hygiene. (1988-2016). Welcome to Bug Busting. Retrieved from <http://www.chc.org/>
- Contemporary Pediatrics. (2013). Head Lice: Myths, Facts, Treatments. *Contemporary Pediatrics*, 40-45.
- Devore, C. D., & Schutze, G. E. (2015, May). Head Lice. *American Academy of Pediatrics*, 135(5), e1356-e1365. doi:10.1542/peds.2015-0746
- Canadian Paediatric Society Position Statement (2008). [link](#) no longer available, updated Sept 2016
- Cummings, C., Finlay, J., MacDonald, N. (2016, Sept 22). Head Lice Infestations: A Clinical Update. Canadian Paediatric Society. <http://www.cps.ca/en/documents/position/head-lice>
- Diaz, J. H. (2015). Lice (Pediculosis). In J. E. Bennett, R. Dolin, & M. J. Blaser, *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases, Updated Edition* (Eighth ed., pp. 3246-3249.e1). New York, New York: Elsevier. Retrieved from <https://www.clinicalkey.com/nursing/#!/content/book/3-s2.0-B9780323401616002941>
- Do-Pham, G., Monsel, G., & Chosidow, O. (2014, September). Lice. *Seminars in Cutaneous Medicine and Surgery*, 116-118. doi:10.12788/j.sder.0105
- Durand, R., Bouvresse, S., Berdjane, Z., Izri, A., Chosidow, O., & Clark, J. M. (2012). Insecticide resistance in head lice: clinical, parasitological and genetic aspects. *Clinical Microbiology and Infection*, 18, 338-344. doi:10.1111/j.1469-0691.2012.03806.x

- Early J, MacNaughton H (2014, June 15). Ivermectin lotion (sklice) for head lice. *American Family Physician*, 89(12):984-6
- Feldmeier, H. (2012). Pediculosis capitis: new insights into epidemiology, diagnosis and treatment. *European Journal of Clinical Microbiology & Infectious Diseases*, 31, 2105-2110. doi:10.1007/s10096-012-1575-0
- Feldmeier, H. (2014, September 16). Treatment of Pediculosis Capitis: A Critical Appraisal of the Current Literature. *American Journal of Clinical Dermatology*, 15, 401-412. doi:10.1007/s40257-014-0094-4
- Frankowski, B., & Bocchini, J. A. (2010). Clinical Report-Head Lice. *American Academy of Pediatrics*, 126(3), 392-403. doi:10.1542/peds.2010-1308
- Goldstein, A. O., & Goldstein, B. G. (2015). *Pediculosis capitis*. Retrieved from UpToDate: http://www.uptodate.com/contents/pediculosis-capitis?source=see_link
- Goodman, D. M. (2013, June 12). Head Lice. *The Journal of the American Medical Association: Patient Page*, 2398. Retrieved from http://www.lgsmithfoundation.com/PDFs/headlice_jama.pdf
- Greener, M. (2016, April 01). Getting Ahead of Lice. *British Journal of School Nursing*
- Greive KA, Barnes TM. (2017). The efficacy of Australian essential oils for the treatment of head lice infestation in children: A randomised controlled trial. *Australian Journal of Dermatology*, March 2017
- Gunning, K., Pippitt, K., Kiraly, B., & Sayler, M. (2012, September 15). Pediculosis and Scabies: A Treatment Update. *American Family Physician*, 86(6), 535-541. Retrieved from <http://www.aafp.org/afp/2012/0915/p535.html>
- Guss, D. A., Koenig, M., & Castillo, E. M. (2011). Severe Iron Deficiency Anemia and Lice Infestation. *The Journal of Emergency Medicine*, 41(4), 362-365. doi:10.1016/j.jemermed.2010.05.030
- Handbook of the Non Drug Intervention (HANDI) Project Team. (2013, March). Wet combing for the eradication of head lice. *Australian Family Physician*, 129-130. Retrieved from <http://www.racgp.org.au/af/2013/mar/wet-combing/>
- Health Link BC. (2014, August). *Head Lice*. Retrieved from Health Link BC: <http://www.healthlinkbc.ca/healthfiles/pdf/hfile06.pdf>
- Hill, N., Cameron, M., Moor, G., Butlin, A., Preston, Williamson, M., & Bass, C. (2006). Clinical evaluation of the Bug Buster kit for the control of head lice at the community level: Effectiveness, acceptance and sustainability. *Third International Congress on Phthiraptera (Lice) 2006*
- Hill, N., Moor, G., Cameron, M. M., Butlin, A., Preston, S., Williamson, M. S., & Bass, C. (2005, August 11). Single blind, randomised, comparative study of the Bug Buster kit and over the counter pediculicide treatments against head lice in the United Kingdom. *British Medical Journal*, 331. doi:doi: <http://dx.doi.org/10.1136/bmj.38537.468623.E0>
- Jahangiri F.(2017). Case report: a new method for treatment of permethrin - resistant head lice. *Clinical Case Report* 5(5), 601-604

Jahnke, C., Bauer, E., Hengge, U., & Feldmeier, H. (2009, March). Accuracy of Diagnosis of Pediculosis Capitis: Visual Inspection vs Wet Combing. (M. Bigby, Ed.) *Archives of Dermatology*, 145(3), 309-

Koch E., Clark J.M., Cohen B., Meinking T.L., Ryan W.G., Stevenson A., Yetman R., Yoon K.S. (2016, September). Management of head louse infestations in the United States- A literature review. *Pediatric Dermatology*, 33(5): 466-472
doi: 10.1111/pde.12982

Kolber M.R., Pierse M., Nickonchuk T. (2016, April). The louse is (no longer) in the house. *Canadian Family Physician*, 62(4): 322

Kurt, O., Balcioglu, I. C., Limoncu, M. E., Girginkardesler, N., Arserim, S. K., Gorgun, S., Ozbel, Y. (2015). Treatment of head lice (*Pediculus humanus capitis*) infestation: Is regular combing alone with a special detection comb effective at all levels? *Parasitol Res*, 1347-1352. doi:10.1007/s00436-015-4311-8

Kyle J. Gellatly, S. K. (2016). Expansion of the Knockdown Resistance Frequency Map for Human Head Lice (Phthiraptera: Pediculidae) in the United States Using Quantitative Sequencing. *Journal of Medical Entomology*, 53(3), 653-659. doi:10.1093/jme/tjw023

Marcoux, D., Palma, K. G., Kaul, N., Hodgdon, H., Van Geest, A., Previte, D. J., Clark, J. M. (2010, May-June). Pyrethroid Pediculicide Resistance of Head Lice in Canada Evaluated by Serial Invasive Signal Amplification Reaction. *Journal of Cutaneous Medicine and Surgery*, 14(3), 115-118.
doi:10.2310/7750.2010.09032

Maxwell M, Crawford B, Rose V. (2015, April). Nitbusters: lessons from a school-based intervention study to reduce head lice in a disadvantaged community. *Health Promot Journal Australia*, 25(1):67-8.
doi: 10.1071/HE13092

Meister L., Ochsendorf F. (2016, November). Head lice. *Dtsch Arztebl International*, 113(45): 763-772.
doi:10.3238/arztebl.2016.0763

Moshki M, Zamani-Alavijeh F, Mojadam M (2017). Efficacy of Peer Education for Adopting Preventive Behaviors against Head Lice Infestation in Female Elementary School Students: A Randomised Controlled Trial. *PLoS One*. Jan 10;12(1)

Pontius, D. J. (2014, September-October). Demystifying Pediculosis: School Nurses Taking the Lead. *Pediatric Nursing*, 226-235

Rukke, B. A., Soleng, A., Lindstedt, H. H., Ottesen, P., & Birkemoe, T. (2014: 113(5)). Socioeconomic status, family background and other key factors influence the management of head lice in Norway. *Parasitology Research*, 1847-1861

Sangare AK., Doumbo, OK., Raoult D. (2016). Management and Treatment of Human Lice. *Biomed Res Int*. 2016;2016:8962685. Doi 10.1155/2016/8962685. Epub2016 Jul 27. PMID: 26092045

Semmler M, Abdel-Ghaffar F, Gestmann F, Abdel-Aty M, Rizk I, Al-Quraishy S, Lehmacher W, Hoff NP. (2017) Randomized, investigator-blinded, controlled clinical study with lice shampoo (Licener®) versus dimethicone(Jacutin® Pedicul Fluid) for the treatment of infestations with head lice. *Parasitol Res*. 116(7), 1863-1870

Simmons, S. (2015, June). Taking a closer look at. *Nursing*, 57-58. Retrieved from <http://resolver.ebscohost.com/openurl?sid=Entrez%3aPubMed&id=pmid%3a25969886&site=ftf-live>

Smith, C. H., & Goldman, R. D. (2012, August). An Incurable Itch: Head Lice. *Canadian Family Physician*, 58, 839-841

Tebruegge, M., Pantazidou, A., & Curtis, N. (2011). What's bugging you? An update on the treatment of head lice infestation. *Archives of Disease in Childhood*, 96, 2-8. doi:10.1136/adc.2009.178038

Wadowski, L., Balasuriya, L., Price, H. N., & O'Haver, J. (2014). Lice update: New solutions to an old problem. *Clinics In Dermatology*, 33, 347-354. doi:10.1016/j.clindermatol.2014.12.012

Wolf L., Eertmans F., Wolf D., Rossel B., Adriaens E. (2016, June). Efficacy and safety of a mineral oil-based head lice shampoo: A randomized, controlled investigator-blinded, comparative study. *PloS One*, 11(6): e0156853.

doi: 10.1371/journal.pone.0156853. eCollection 2016

Yoon, K. S., Previte, D. J., Hodgdon, H. E., Poole, B. C., Kwon, D. H., El-Ghar, G. A., . . . Clark, J. M. (2014, March). Knockdown Resistance Allele Frequencies in North American Head Louse (Anoplura: Pediculidae) Populations. *Journal of Medical*



island health



viha.ca