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# Pediculosis: A Time Line of Evolution, Trends and Treatments

Lisa Rudquist RN, BSN, MA

# Disclosure: Owner/Cofounder

**Our mission is to provide families safe, highly effective, all natural and pesticide-free head lice control that contains the highest quality ingredients in every product**

Littlebugs – Founded 2010

Corporate Office – Hopkins Minnesota

Woman Owned Business

We are two moms and registered nurses that are committed to bringing safe natural head lice Elimination and Prevention products to families. After experiencing this issue first hand, we launched the Littlebugs Hair Care products so parents and children would have an effective all natural option for head lice elimination and prevention.

Website: [www.littlebugshaircare.com](http://www.littlebugshaircare.com)

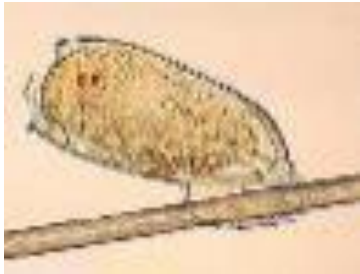


Rachel Knutson, RN Lisa Rudquist, RN

# Lice Awareness Facts

- The CDC reports an estimated 12 million head lice infestations each year in the United States alone
- The average age of a person that acquires head lice is 3-11, 85% of siblings will acquire head lice from a family member (Seeing more teens now due to selfies)
- 65% of Moms will acquire head lice from their child
- Lice resistance to pesticide treatments are on an astounding up rise**
- All types of people can contract lice, it is not a sign of poor hygiene
- Lice can be spread from sharing hairbrushes, combs and pillows but you can get them from theaters, airplanes, schools, slumber parties, camps, playgrounds, team sports participation etc.
- Head lice (pediculosis) has been present for hundreds of years and are here to stay

# Life Cycle of Lice



**NIT**  
8-10 Days  
Glued to hairshaft



**NYMPH**  
10 Days  
Grows into an adult



**ADULT**  
During 28 Days, can lay  
up to 150 eggs

## Consumer Reports 2014

The over-the-counter products are losing their fight against lice because studies suggest that most of the bugs in the U.S. have evolved to become genetically resistant to the insecticides found in those products. That includes pyrethrum in shampoos such as Rid and the permethrin in creme rinses such as Nix. Pyrethrum is a naturally occurring pyrethroid extract from the chrysanthemum flower, and permethrin is a synthetic form of that drug. Products with those ingredients have been available to consumers for decades.



A study published in the March 2014 issue of the Journal of Medical Entomology found that 99 percent of the head lice collected by school nurses and professional lice combers in 12 states and three Canadian provinces were genetically resistant to permethrin. "It's not surprising that we are seeing a resistance to these products," Rangan says. "That's what happens with insecticides and pests over time."

\*National Institute of Health Study  
J med Entomol. 2014 Mar; 51(2):450-457

## Chemical-Based Products are made with Permethrin

- Smells like a Chemical
- Not Effective on Resistant Organisms

## Vector Control, Pest Management, Resistance, Repellents

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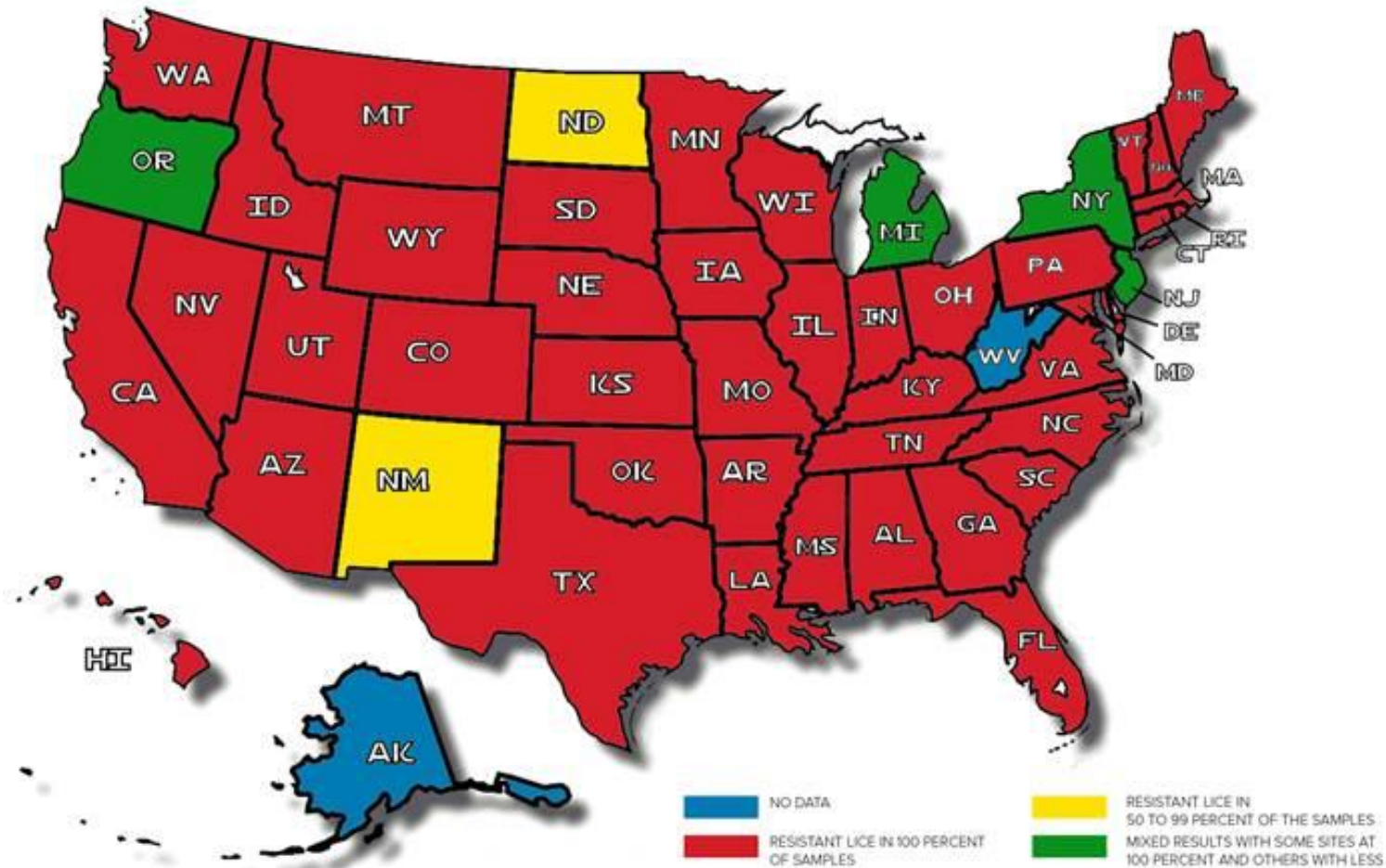
# Expansion of the Knockdown Resistance Frequency Map for Human Head Lice (Phthiraptera: Pediculidae) in the United States Using Quantitative Sequencing

Kyle J. Gellatly,<sup>1,2</sup> Sarah Krim,<sup>3</sup> Daniel J. Palenchar,<sup>4,5</sup> Katie Shepherd,<sup>6</sup>  
Kyong Sup Yoon,<sup>7</sup> Christopher J. Rhodes,<sup>8,9</sup> Si Hyeock Lee,<sup>10</sup> J. Marshall Clark<sup>3,11</sup>

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# Super Lice Across the U.S.



# Littlebugs Innovation

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## **Littlebugs Mint Serum is 99% Grapeseed Oil and 1% Dimethicone\***

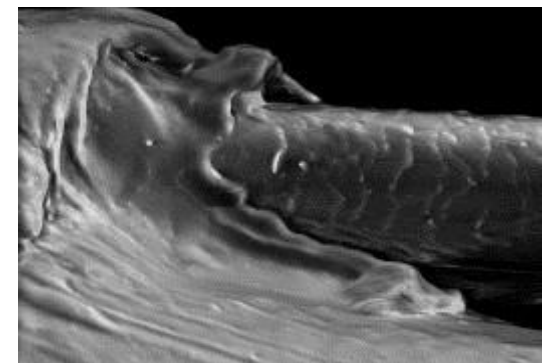
- Grapeseed oil used in hair-care and for massages all over the world
- Dimethicone\* acts as a thickener, which allows the grapeseed oil to clog the lice's spiracles leading to suffocation
- Smells like peppermint

## **Littlebugs Nit Spray**

- Enzyme based solution that breaks down the protein (glue) breaking the bond that attaches the nit to the hair shaft

## **Comb**

- Patented Comb Design
- Uses durable stainless steel spiral-grooved teeth



# Easy Three-Step Elimination Process



## 1. Littlebugs Mint Serum

A nontoxic serum aiding in head lice elimination. Only a 15 minute application. Safe for all ages.



## 2. Littlebugs Nit Spray

Disintegrates nits. Formulated with natural enzymes dissolving the integrity of the louse and its adhering properties.



## 3. Littlebugs Lice Comb

Uses stainless steel, and spiral grooved teeth. This design works effectively to remove both lice and nits, creating less drag on the hair while combing.





# Air Alle Treatment Process

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- \*Innovative treatment of head lice via dehydration
- \*Takes 30 minutes for treatment
- \*Combination of heat and speed of delivery make this 99.2% effective.

Treatment Center located in Hopkins, MN

Treated over 1900 patients last year

Average family has battled lice for 3 months before seeking treatment and tried 2 rounds of OTC or prescription product

# Littlebugs Product Advantages

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- All natural, pesticide free, vegan, sulfate-free, paraben-free & phthalate-free hair treatment
- Complete lice and egg elimination
- Littlebugs has the “Gold Standard” lice comb
- Highest quality yeast enzyme for nit removal
- Soothing to scalp
- Pleasant aroma, no harmful fumes
- Quick and effective 30 minute treatment process
- Allergy Friendly
- Are made from over 96% Natural resources
- 24/7 Customer Hotline
- No Immunity



Treat lice naturally  
and avoid dangerous  
chemicals.

Complete line of **ELIMINATION AND PREVENTION** hair care



**Thank You!**