

# The Prudent Prescriber

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### Another Lousey Review *Pediculus humanus capitis*

Head lice remains a frustrating, emotionally distressing infestation in Colorado. For this year, school nurses report cases in all, but one of the elementary schools in Grand Junction. Denver now has its own free standing "Lice Clinics of America." Head lice treatment costs \$1billion/year in the US. Although head lice are not a health hazard or sign of poor hygiene, there is a huge stigma and kids are often ostracized. Here is a synopsis of the American Academy of Pediatrics head lice guidelines published last year. (Devore et al *Pediatrics* 2015;135:e1355, published online April 27, 2015)

#### Lifecycle and Transmission

- Adult 2-3 mm long (sesame seed sized), 6 legs, tan to grayish white. Female lives up to 3-4 weeks and when mature lays 8-10 eggs per day.
- Eggs attached to hair follicle within 4 mm of scalp and incubated by body heat. They hatch in 8-9 days. Nymphs become adults in 9-12 days.
- The louse feeds by injecting small amounts of saliva which has vasodilatory and anti-coagulant properties into the scalp, allowing the louse to suck small amounts of blood every few hours.
- Lice can't fly, hop or jump. They can only crawl.
- Pets DO NOT play a role in the transmission of human lice.
- In most cases, transmission occurs by direct head to head contact. Indirect spread through contact with personal belongings of an infected individual (combs, brushes, hats) is much less likely to occur.
- There are case reports that combing dry hair can build up enough static electricity to eject a louse from an infested scalp for a distance up to a meter.
- In one study, live lice were found on only 4% of pillowcases used by infected volunteers.

Pharm Reps ≠ Rational Prescribing

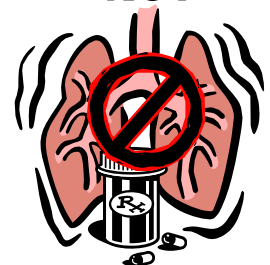
(PR)



(RP)

Antibiotics do

**NOT**



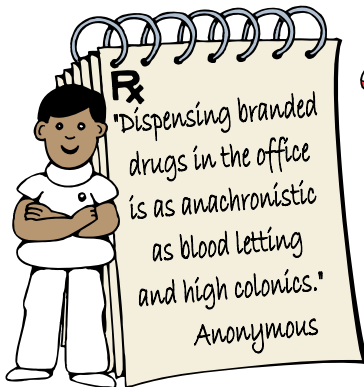
help

acute bronchitis

**β-blockers in post-MI save lives**



Pill splitters save BIG

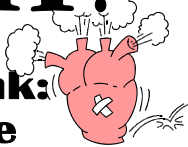


**Rx**  
"Dispensing branded drugs in the office is as anachronistic as blood letting and high colonics."  
Anonymous

## CHE?

Think:

**Ace**  
**Aldactone**  
**B-blocker**  
**Dig**  
**Diuretic**



Avoid these expensive "me-too" drugs:

**Intermezzo**  
**Vimovo**  
**Livalo**  
**Pristiq**  
**Viibyrd**  
**Edarbi**  
**Daliresp**



Treat patients > 60 years to 150/90



**NOW AVAILABLE ON THE GENERIC MARQUEE**

Lunesta→eszopiclone  
Namenda→memantine  
Axert→almotriptan  
Prandimet→repaglinide/metformin  
Jaylyn→dutasteride/tamsulosin  
Ortho Tri-Cyclen Lo→Tri-Lo-Marzia,  
Tri-Lo-Spirintec, & others

## Diagnosis

- Diagnosis by direct observation.
- Difficult at times because lice avoid light and can crawl rapidly.
- Using water, oil or a conditioner slows down the lice and eliminates static electricity.
- Many presumed "lice" submitted by physicians, nurses and parents to labs have been found to be artifacts ...dandruff, hair spray droplets, scabs, dirt or other insects like aphids.

## Treatment

There are two over the counter, relatively inexpensive products that have a long track record of safety. Local primary care docs indicate that they are rarely seeing patients with head lice and retail pharmacists deny seeing the higher cost prescription products (see table below) flying off their shelves. It appears that most families are using the OTC products or home remedies for lice treatment.



### 1% Permethrin

- Permethrin 1% is the most studied pediculicide in US and the least toxic to humans. Apply the Nix lotion to **damp** hair after shampooing with a non-conditioning shampoo. Leave on 10 minutes, rinse and towel dry. Conditioners interfere with permethrin adhering to the hair shaft and reduce its residual effect. Retreatment at 9 days (new evidence, based on the life cycle), whether you can see lice or not, is now thought optimal.
- Adverse effects: pruritis, erythema and edema. Less allergenic than pyrethrins. 5% permethrin (Elimite) is not approved for lice and does not work any better in those lice resistant to 1% permethrin.
- 1% permethrin (Nix) available in 60ml, 2 bottles for \$13.97 from Amazon or 2 bottles and a comb for \$18.33 from Safeway.



### Pyrethrins

- Pyrethrins are manufactured from chrysanthemums. They are neurotoxic to lice, but newly laid eggs do not have a nervous system, so 20%-30% of eggs remain viable after treatment. Pyrethrins are available in shampoo and mousse formulations. Apply to **Dry** hair, leave on for 10 minutes, rinse out. Retreat in 9 days.
- RID is available OTC at Safeway, \$22 for 8 oz.

## Prescription Products

Product	Ovicidal	Concerns	Cost
malathion	Yes	Flammable, long application time (8-12 hrs); stinks. Little data in kids <6 yrs. C/I in kids <2 yrs.	59 ml bottle of 0.5% lotion – price varies from ~\$100 to \$200 in different pharmacies in Grand Junction. Check GoodRX.com
Ulesfia Benzyl alcohol 5%	No	Asphyxiates the adult louse; 10% erythema, 7% pyoderma. FDA approved in kids >6 months.	\$59-\$65 for 227 gm of 5% lotion. Need to treat at least twice and with long hair (>22") might need 3 bottles per treatment. \$360!!!
Spinosad Natural fermentation of a soil bacterium.	Yes	Neurotoxin to adults and nits; 2-3% erythema; reapply only if nits are seen.	Wide range in prices in Happy Valley; \$102-\$211 for 120 ml bottle; Shop around. GoodRX.com
Sklice Ivermectin (0.5%) Wins the award for best name	Yes	When the treated eggs hatch, the lice are unable to feed as a result of pharyngeal muscle paralysis.	117 gm tube of the lotion \$275-\$300 in Grand Junction.

## Alternative Treatments

- Prescriber's Letter says avoid all natural products. Essential oils are widely used in traditional medicine, but variability of their constitution affects outcomes.
- Lavender oil, tea tree oil, ylang ylang oil and Andiroba oils are not required to jump through FDA hoops.
- One study showed HairClean 1-2-3 (anise, ylang ylang, coconut oils and isopropyl alcohol) was found to be at least as effective as Nix.



- Mayonnaise is the treatment that I endured when I was 7 or 8. As I recall, my mom rubbed mayo into my scalp under a hideous green shower cap off and on for 3 months. My self-image is still reeling. Although widely used, there have been no RCTs to evaluate the effectiveness of mayonnaise.
- A non-randomized, uncontrolled 2004 study reported a 96% cure rate with Cetaphil cleanser. The lotion is applied to the hair, dried on with a hair dryer, left on overnight and washed out the next morning. This process is repeated weekly x 3.

## Being "Nit-Picky"

- Manual removal is safe, cheap and tedious.
- The AAP guideline promotes nit-picking as an opportunity for parent and child to have "some close extended time together." Pediatricians can put a positive "spin" on anything.
- Battery powered MagiComb with oscilating teeth claim to kill live lice and nits. A bug zapper like device, Robi-Comb claims to kill live lice. There are no RCTs and warnings are not to use in kids with seizures or pacemakers.
- Finally, if your patients are affluent and want to focus the quality time with their kids on more pleasant activities, there are lice salons. At The Lice Clinics of America: \$175 buys you an AirAlle treatment (a hand held device applies 130 degrees to the scalp for 30 minutes) and a professional comb out. Their website says they guarantee a cure. For the budget minded: the 30 minute AirAlle, but you do the comb out at home, goes for \$119.

## Environmental Interventions

- Treat family members who share a bed with an infested person, even if no live lice are found.
- Only items that have been in contact with the head of the person with the infestation in the 24-48 hours before treatment should be considered for cleaning. Think clothing, headgear, furniture, carpeting and rugs.
- Washing, soaking or drying items at >130 degrees will kill stray lice and nits. Vacuum furniture, carpets and rugs.

## Lice and Schools

### AAP Guidelines:

“Because a child with an active case of head lice likely has had the infestation for a month or more by the time it is discovered, and poses little risk to others, he or she should remain in class.” Confidentiality is crucial and **sending the kid home “stat” compromises confidentiality.**

- Do “ALERT letters” to all parents in a class violate privacy laws? No studies to show that these letters are efficacious.
- “No nit” policies that exclude children from school until all nits are removed may violate a child’s civil liberties. “No nit” policies should be abandoned.

### My Take:

- I am in favor of sticking with the relatively inexpensive OTC products. The lack of long term experience in children with these prescription products, their high costs and the lack of comparative efficacy studies make them poor choices!
- The sparse data available regarding drug resistance is conflicting. Based on nurse observations in Happy Valley, kids are often being “cured” without seeing a doc or getting a prescription.
- Initial failures with Nix or RID may represent incomplete or faulty application (using with a conditioner, not combing out the nits completely or failing to repeat the treatment).
- Maybe mayo really does work.

You may access previous issues at <http://www.rmhp.org/providers/prudent-prescriber>.

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