

Head Lice

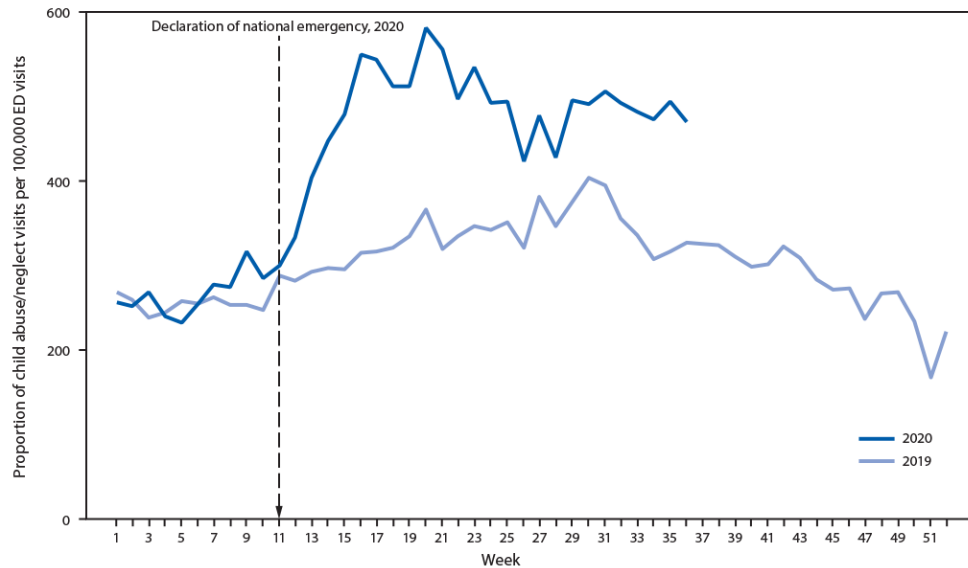
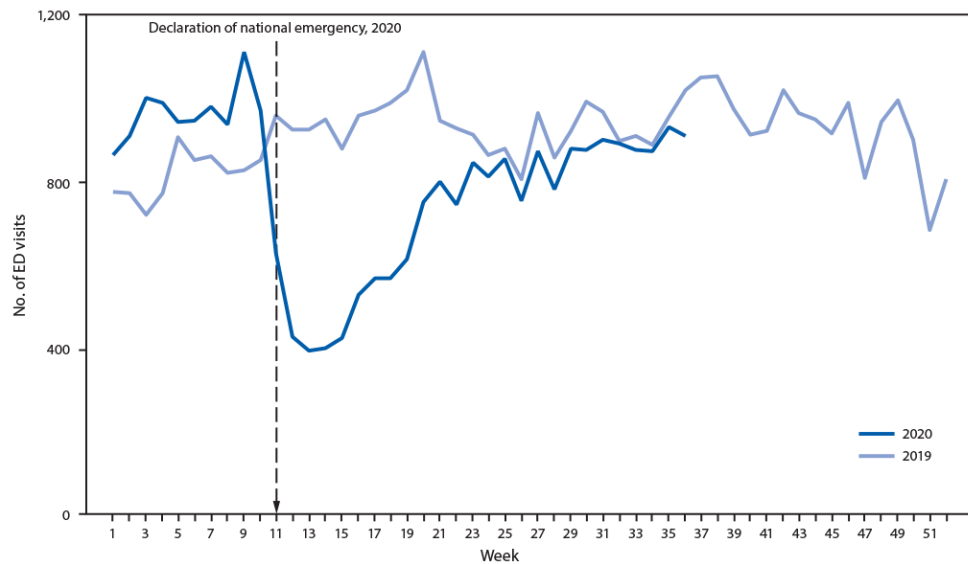
Abelardo C. Moncayo, PhD

Director, Vector-Borne Diseases

December 16, 2020



Department of
Health



Trends in U.S. Emergency Department
Visits Related to Suspected or Confirmed
Child Abuse and Neglect Among Children
and Adolescents Aged <18 Years Before
and During the COVID-19 Pandemic —
United States, January 2019–September
2020
Weekly / December 11, 2020 / 69(49);1841–
1847

The New York Times

Parents Face Murder Charge in Death of Girl With Severe Lice

Some experts were skeptical that lice alone could have killed the girl, Kaitlyn Yozviak. The case underscored fears about how the pandemic has cut children off from people who could report neglect.

By Maria Cramer

Oct. 5, 2020

SUBMIT AN OUTBREAK

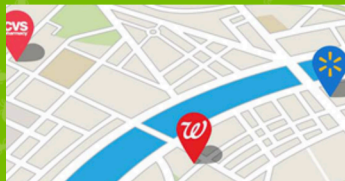
For Parents >

For Nurses >



WHERE TO BUY

Find a Store Near You



LICE TRACKER

37216

Enter your 5 digit ZIP code

Submit >

Report an outbreak >

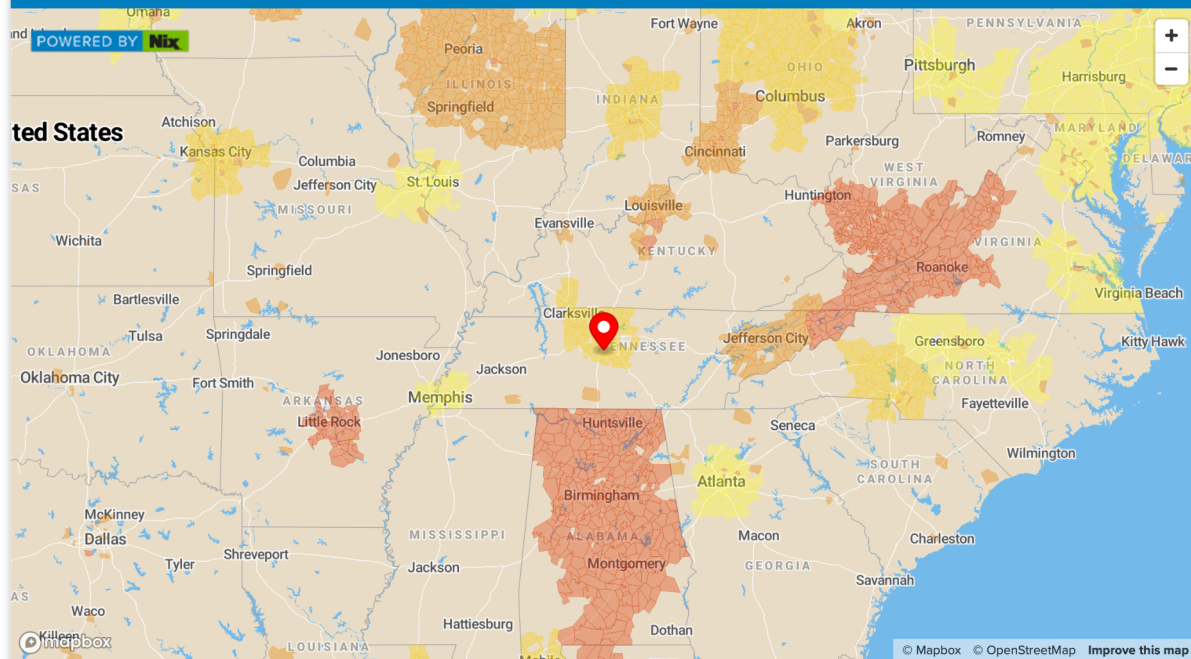
Your Location:
Nashville, TN 37216

Today's Date:
12/15/2020

Lice Incidence Level



Share Incidence Level



Incidence Level:

☐ None

☐ Low

☐ Medium-Low

☐ Medium

☐ Medium-High

☐ High



Overview

- What are Head Lice?
- Life Cycle of Head Lice
- Transmission
- Symptoms
- Detection
- Myths and Facts
- Management and Treatment
- Policy Recommendations

What are Head Lice?

Figure 1.

Head lice feeding on a human scalp. Lice engorge and enlarge on blood and will become a reddish color when recently fed.

Figure 2.

A close up high-resolution image of an adult male head louse in its natural environment.

Figure 3.

Head lice eggs (nits) on a person's hair. Dandruff, hair casts, globules of hair spray, and scalp conditions such as psoriasis or eczema may easily be mistaken for nits.



Figure 3



Figure 1



Figure 2

Life Cycle

Figure 4.

Head lice eggs, or nits, are attached singly to hair shafts close to the scalp. They may be confused with dandruff or dried particles of hair spray or gel.

Figure 5.

Head lice eggs will hatch into first stage nymphs in 7-10 days.

Figure 6.

Head lice progress through three nymphal stages into the sexually mature adult stage. All stages of head lice feed on blood.



Figure 4



Adult louse
actual Size

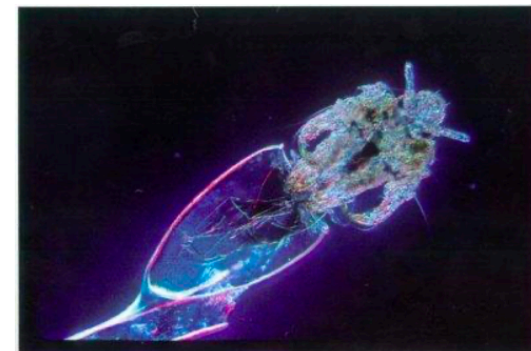


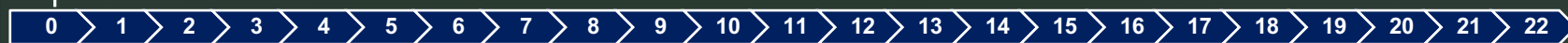
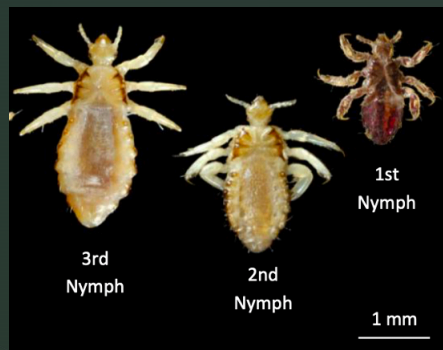
Figure 5



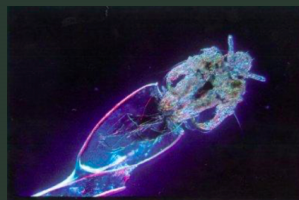
Figure 6

Image: Centers for Disease Control/James Gathany

Eggs
laid



Eggs
hatch



Adult lice

Head Lice Environment

Head lice evolved to live on human heads and cannot survive in any other environment, on any other part of the human body, or any other animal.

The environment on a head provides the perfect combination of warmth, humidity, food (blood), and a matrix (hair) to live on.

The feet (claws) of a head louse are best adapted to crawling rapidly along and through hair.

Head lice will die if separated from the human head for more than a day, so they avoid leaving the head if possible.

Head Lice on Children

Head lice infestations are more common on young children than teens or adults because children have a much higher degree of physical, interpersonal contact.

Girls are more predisposed to head lice than boys because girls are more likely have direct prolonged head to head contact, and share things like hats, hair ties, combs, and clothing.

African Americans are less likely than other races to get a head louse infestation due to the structure of their hair.

Head Lice on Children

Head lice infestations are not related to a child's level of cleanliness or hygiene.

Infestations are primarily due to a child's unfortunate contact with another carrier of lice.

As head lice can spread in a kindergarten / pre-school setting, it is important to be vigilant for children with signs of an infestation and address the problem to prevent its spread.

How Head Lice Spread

Head lice are most commonly spread from person to person by direct and prolonged head to head contact.

It is uncommon for head lice to be spread from person to person on inanimate objects.

In the uncommon event that lice are spread on objects it is usually by:

head gear (**hats, scarves, hair ties, barrettes, brushes, combs, headphones**),

or by other items that have been in recent, prolonged contact with infested hair (**coat collars, couch cushions, pillows**).

How Head Lice Spread

A recent Australian study found live lice on only 4% of the pillows that had just been used by infested volunteers.

Another study examined carpets on 118 classroom floors. During this period, over 14,000 live lice were collected from 466 children who used those classrooms, but no lice were found on the carpets.

Based on these, and other studies, a major focus of head lice prevention campaigns should be to:

1. reduce the number of lice on the heads of children
2. reduce the incidence of head to head contact, and
3. Reduce the sharing of combs, brushes and hats.



Cleaning of Personal Items and Environment

- Head lice survive less than 1-2 days if they fall off a person and cannot feed; nits cannot hatch and usually die within a week if they are not kept near body temperature
- Items that have been in contact with the head of the person with infestation in the 24-48 hours before treatment should be considered for cleaning



Check everyone in the household at the same time

Check everyone in the household at the same time, prior to cleaning the environment. This includes grandparents, younger and older siblings, and parents. Statistics have suggested that 60 percent of people with head lice don't know they have them and have no symptoms. They may be unintentionally infecting others and continuing the cycle.



Launder any personal items that could be infested with head lice

Personal items to be laundered include clothing, bedding, towels, cloth toys, etc. Items should be washed for at least 10 minutes in hot water and/or dried on high heat for at least 30 minutes. For items that cannot be washed, seal in a plastic bag and store for 14 days at room temperature or 24 hours in below freezing temperatures.



Vacuum

Items that should be vacuumed include bare mattresses, carpets, floors, stuffed animals, coat collars, hats, couches, chairs, and car upholstery. There is no need to discard the vacuum bag after cleaning, except for aesthetic purposes. Head lice cannot survive without a blood meal.



Inspect hairbrushes, combs, hair ties, and barrettes

For washable accessories, wash and dry (on high heat) for at least 30 minutes. Soak combs, brushes and barrettes in water hotter than 130°F. If items cannot be exposed to high heat, soak them in Lysol® or rubbing alcohol for one hour.



➤ Beginning a Head Louse Infestation

A head louse infestation cannot be started by a single louse unless that louse is a mated female.

A child infested with a single mated female would probably not begin to notice the infestation until about 4-6 weeks after the louse climbed aboard.

By that time, there would be at least 12 to 24 nymph stage lice feeding on the scalp as well as the adult female.

The initial signs of a head louse infestation are a tickling or itchy feeling in the scalp and difficulty sleeping (head lice are more active at night).

Symptoms

- Itching
- Sores
- Tickling sensation
- Sleeplessness and irritability



▸ Detection - Supplies

Time

Light

Magnifying
glass

Lice comb and
disposable
parting tool

Disposable
gloves

Transparent
tape

1

Part hair and
examine hair and
scalp for nits and
crawling lice

2

Begin at nape of
neck and behind
ears

3

Inspect rest of
head

Detection - Method

➤ Prevention – School “No-Nit” Policies

School “no-nit” policies are no longer considered effective or useful.

The **American Academy of Pediatrics** and the **National School Nurse Association** discourage the use of “no-nit” policies

No-nit policies have not been proven to reduce louse infestation rates in schools, and have disrupted student attendance and education.

The presence of visible nits in hair is not evidence of an active louse infestation, and the absence of visible nits does not mean there are no head lice present.

Myths and Facts

Myths

- Easy to get
- They are dirty and spread disease
- Can survive on furniture, carpets, linens, or clothing
- Nits (lice eggs) can fall off a person's head, hatch, and cause another person to get lice

Facts

- Harder to get than cold, flu, ear infection, pink eye, strep throat or impetigo
- Do not spread disease nor are impacted by hygiene
- Head lice need a blood meal every few hours in addition to the warmth and humidity of the human scalp to survive. When off the human body, in optimal conditions, they cannot survive for more than 24 to 36 hours
- Nits are glued to the hair shaft by a cement-like substance and are very hard to remove. When a nymph is hatched, it must quickly have the warmth and food source of a head to survive

Myths and Facts

Myths

- Cutting a person's hair will prevent head lice infestations
- You can get head lice from sitting at a desk next to someone who is infested with head lice
- Lice are commonly spread throughout schools
- Lice are commonly spread through hats, helmets, or headphones

Facts

- The length of a person's hair does not prevent head lice infestations
- Head lice are spread through direct head-to-head contact. The lice do not hop, jump, or fly, so sitting near someone with head lice does not increase the risk of getting the lice
- Transmissions in schools are rare. It is more common to get head lice from family members, overnight guests, and playmates who spend a lot of time together
- Although the spreading of lice through hats, helmets, or headphones is possible, it is rare. It is more common for transmission to occur from pillows, hairbrushes, or bedding. Transmission primarily occurs through head-to-head contact

Myths and Facts

Myths

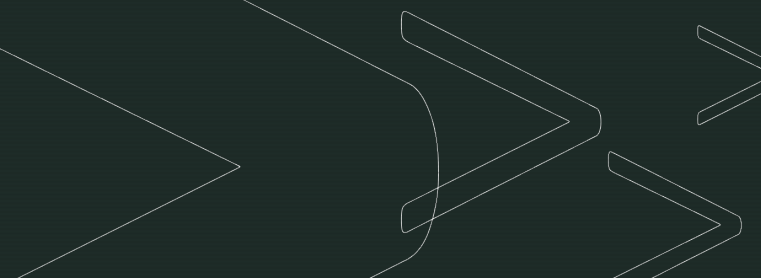
- Schools and child-care facilities should screen all children for head lice, so everyone can be treated and the spread of head lice will be prevented
- “No-nit” policies reduce the risk of head lice in schools and child-care facilities
- You can get lice from your dog or other pets

Facts

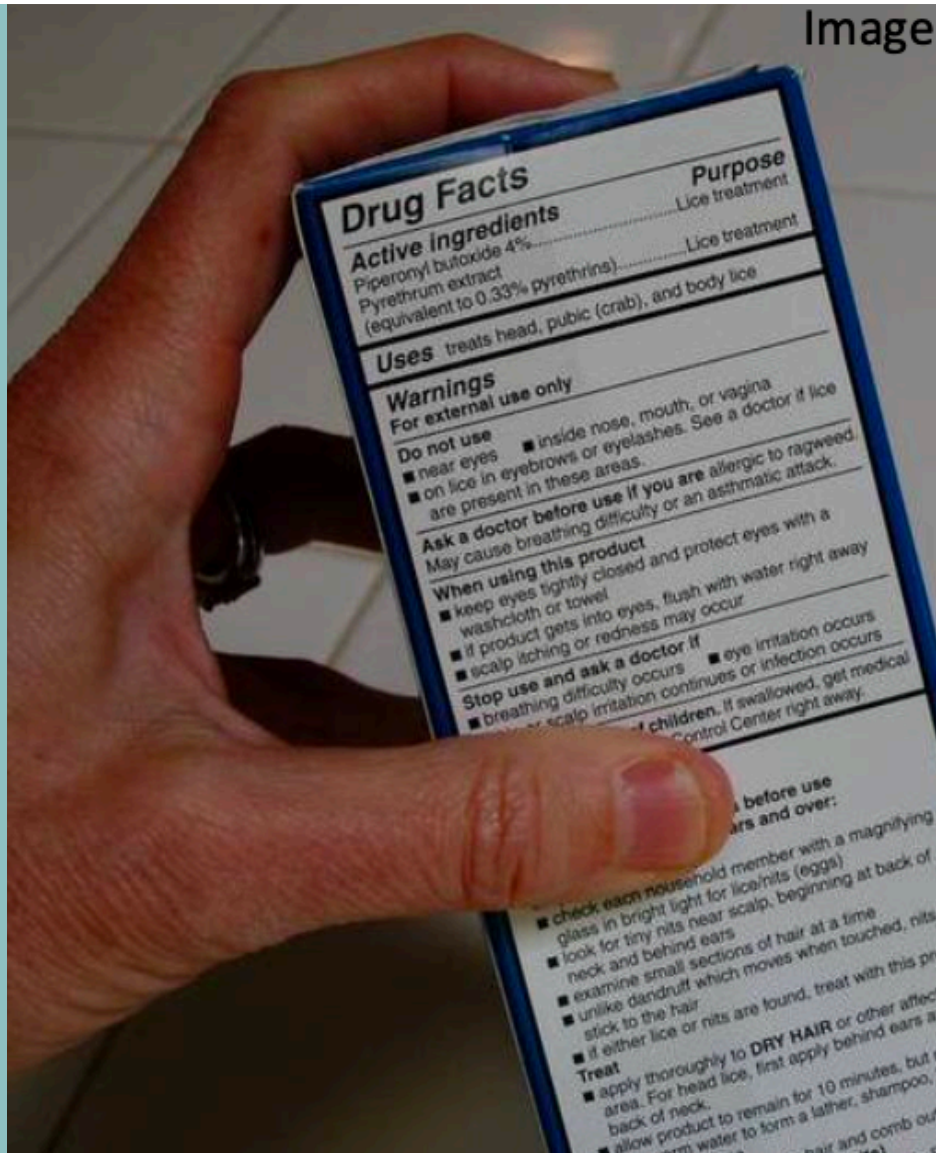
- Having regularly scheduled mass screenings does not reduce the incidence of head lice
- Research shows “no-nit” policies do not decrease the number of cases of head lice. They do increase the risk of incorrect diagnosis of head lice, the number of days children are out of school, and negative social stigma associated with head lice. They also may hinder academic performance
- Head lice are specific to humans. You can get human lice only from other humans. You cannot give your pets lice



Treatment

- Treatment with pediculicides
 - Manual removal
 - Alternative or natural methods
- 

Image



Treatment with pediculicides

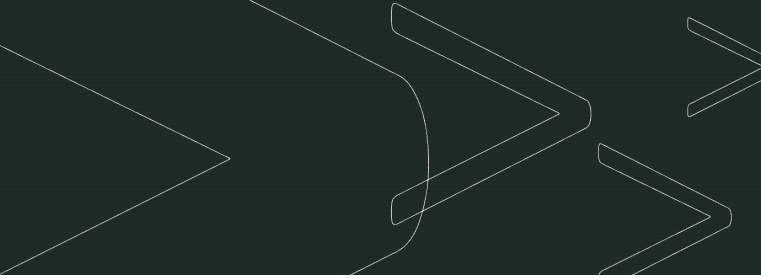
- 80-95% effective
- Repeat in 7-10 days may be needed

Important things to know about pediculicides

- Never treat unless definitive evidence of lice
- Products do not prevent someone from getting lice
- Not 100% effective therefore should be in conjunction with manual removal
- Should not be ingested



Treatment failure

- Misdiagnosis
 - Noncompliance
 - Re-infestation
 - Failure to treat all affected families and close contacts at the same time
 - Resistance of lice to the pediculicide
- 

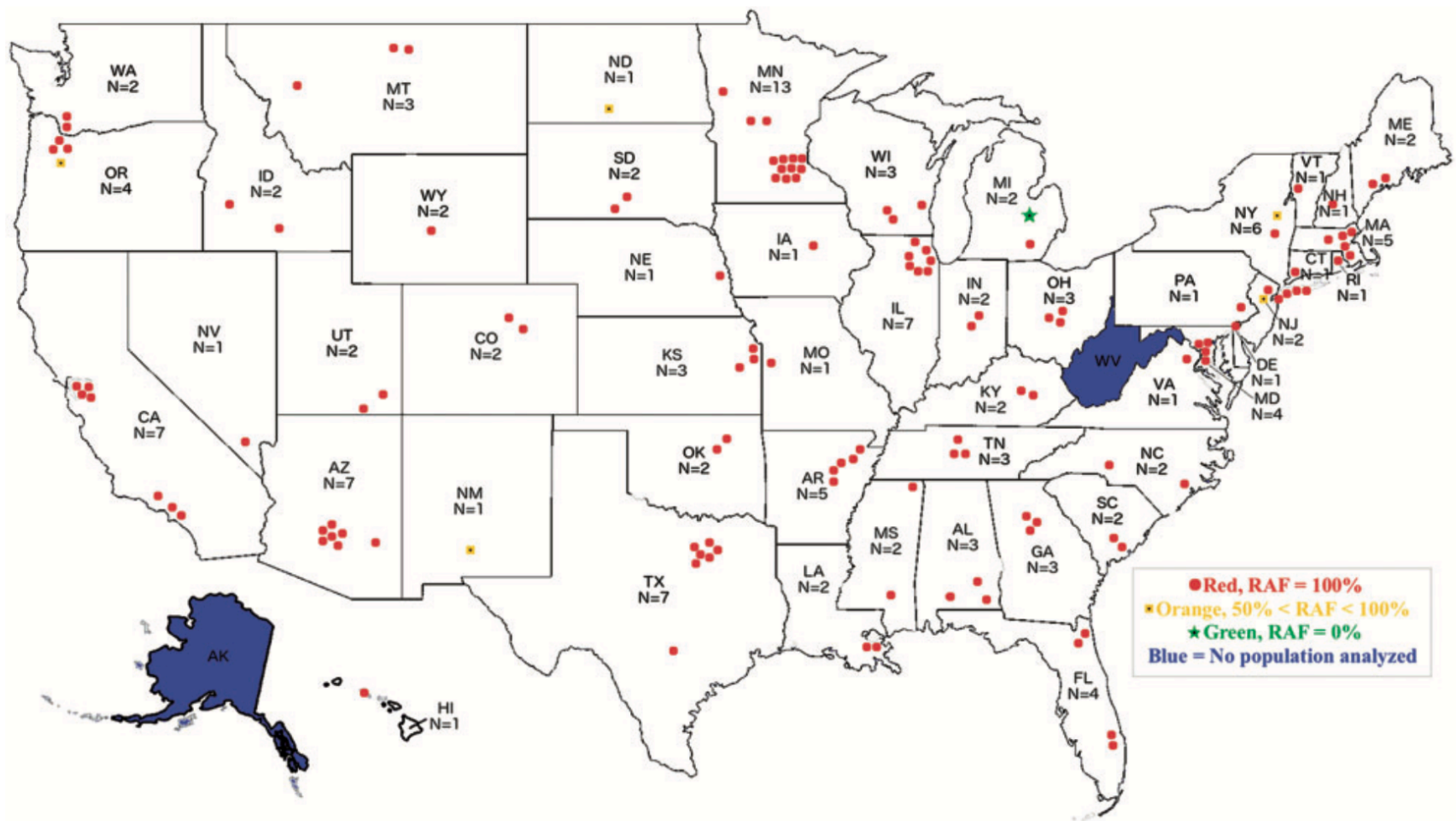


Fig. 2. The *kdr*-type allele frequency map using mean % RAF values from head lice collected in the United States from 2013–2015. Each collection site is color coordinated based on the mean % RAF of *kdr*-type mutations found, where red is fully resistant (RAF = 100%), orange (50% ≤ RAF < 99%) is intermediate, and green is fully susceptible (RAF = 0%).

Over the counter pediculicides

- Permethrin (1%) – Nix
 - Treatment of choice in newly diagnosed cases
 - Age 2 months or older
 - Low toxicity, has residual activity but not ovicidal
 - Apply to damp hair that is first shampooed and then towel dried
 - Cream rinse that is left on for 10 min and then rinsed off
 - Repeat in 7-10 days

Over the counter pediculicides

- Pyrethrins plus piperonyl butoxide - RID, A-200, R & C, Pronto, Clear Lice System
 - From chrysanthemum, pyrethrins plus piperonyl butoxide has low toxicity
 - Age 2 years or older
 - Avoid in persons allergic to chrysanthemums or suffer from asthma
 - Applied to dry hair and left for 10 min before rinsing
 - Repeat in 7-10 days

Prescription Pediculicides

- Malathion (0.5%) – Ovide
 - Ages 6 and older
 - Apply and wash off after 8-12 hrs
 - Ovicidal so single application is adequate but can be reapplied if live lice seen in 7-9 days
 - Potentially flammable so do not use hair dryers, curling irons, flat irons, or smoking near person receiving treatment

Prescription Pediculicides

- Benzyl alcohol lotion (5%) - Ulesfia
 - Approved in 2009, this product kills lice by asphyxiation
 - Ages six months and older
 - Applied for 10 min and repeat in 7 days
 - Not ovicidal

Prescription Pediculicides

- Ivermectin (0.5%) - Sklice
 - Affects the nerve cells of lice
 - Ages six months and older
 - Ivermectin is both pediculicidal and partially ovicidal
 - Side effects include eye redness or irritation, dandruff, dry skin, or burning sensation of skin

Prescription Pediculicides

- Spinosad suspension (0.9%) - Natroba
 - Causes neuronal excitement leading to paralysis and death of lice
 - Ages four years and older
 - Applied to dry hair. Once washed off, comb may be used to remove lice and nits
 - Use product in one or two treatments that are one week apart.

Treatment	Active Ingredient	Advantages	Disadvantages
Alternative or Natural			
Petroleum jelly (Vaseline)	Viscous material which potentially asphyxiates head lice.	“Non-chemical;” perceived as a natural option.	Effectiveness unknown; very difficult to remove from hair.
Mayonnaise	Viscous material which potentially asphyxiates head lice.	“Non-chemical;” perceived as a natural option.	Effectiveness unknown; difficult to remove from hair.
Oil (vegetable, olive, mineral)	Viscous material which potentially asphyxiates head lice.	“Non-chemical;” perceived as a natural option.	Effectiveness unknown; difficult to remove from hair.
Cetaphil	Viscous material which potentially asphyxiates head lice.	“Non-chemical;” perceived as a natural option.	Not approved by the FDA for use as a pediculicide.
Desiccation (Heat)	Controlled, heated air causes desiccation in head lice and eggs.	“Non-chemical;” perceived as a natural option. Ovicidal; one-time treatment usually effective.	Expensive equipment; individual providing treatment must be trained and competent.
Enzyme Products		“Non-chemical;” perceived as a natural option.	Effectiveness unknown.
<i>Note: The use of brand names in this document is for identification purposes only, not for product endorsement.</i>			



Manual removal of lice and nits

- Work in an area with good visibility
- Use fine-tooth lice comb
- Part hair into sections and hold with rubber bands
- Remove nits with comb, fingernails or cutting strands of hair
- Clean comb frequently to remove lice or nits using soapy water or paper towel
- May require several hours per night for several nights. Entertaining movies may help distract child
- Combing may be repeated daily until no lice seen
- Continue monitoring for 2-3 weeks



Policy Recommendations

Parent's Role

Parents have the ultimate responsibility for their children. This includes:

- Becoming educated about head lice.
- Performing regular checks on all individuals in the home.
- Treating a child with head lice as soon as possible and committing to following through until there are no longer signs of an infestation.
- Teaching children how to minimize the chance of getting head lice by avoiding head-to-head contact, not sharing hats, combs, brushes, and hair accessories, and by containing long hair in braids or pony tails.

School's Role

- Develop and adhere to school district's policies and procedures (see "Considerations in Developing a Head Lice Treatment and Prevention Policy" on page 21).
- Periodically disseminate current educational materials on head lice to parents:
 - It is recommended to send a general factsheet letter at the beginning and mid-point of the school year, or as necessary.
 - When a significant increase in head lice cases is detected, consider providing a general factsheet or parent education letter.
- Utilize a school nurse or designee to train other school staff to evaluate cases of head lice.
- Mass screenings are not recommended. Schools and child-care facilities should designate an individual or individuals who will be trained to inspect and assess for head lice on a private and confidential basis.

Recommended Procedures

Student identified during school hours to have an active case of head lice:

1. Student may return to class but restricted from activities involving close head-to-head contact or sharing personal items with other children. **Immediate removal of the child is unnecessary**—if the child has lice, they probably have been infested for weeks and prompt removal of the child could lead to embarrassment and ridicule. The child can be sent home at the end of the day and should be allowed to ride the bus.
2. Notify parent/guardian directly. Offer emotional support to the parent/guardian as this is a difficult situation for all involved.
3. Send home a copy of the “Quick Guide for Managing Head Lice” (see pages 25-26). Schools may also consider sending the optional parent documentation of treatment form (see page 28).

Student with suspected case of head lice returns to school:

1. Parent must accompany their child to the school office with confirmation of treatment.
2. Designated school personnel will re-examine the student's hair:
 - Student will be re-admitted to school if no live lice are found.
 - If live lice are found and not removed, the student may not be re-admitted to class.
 - Review with parent the manual lice removal techniques (*caution: if chemical treatments were used, they should not be used again for another 7-10 days*).
 - Suggest parent call their pediatrician for further assistance.
 - May also contact local health department or school nurse for assistance.

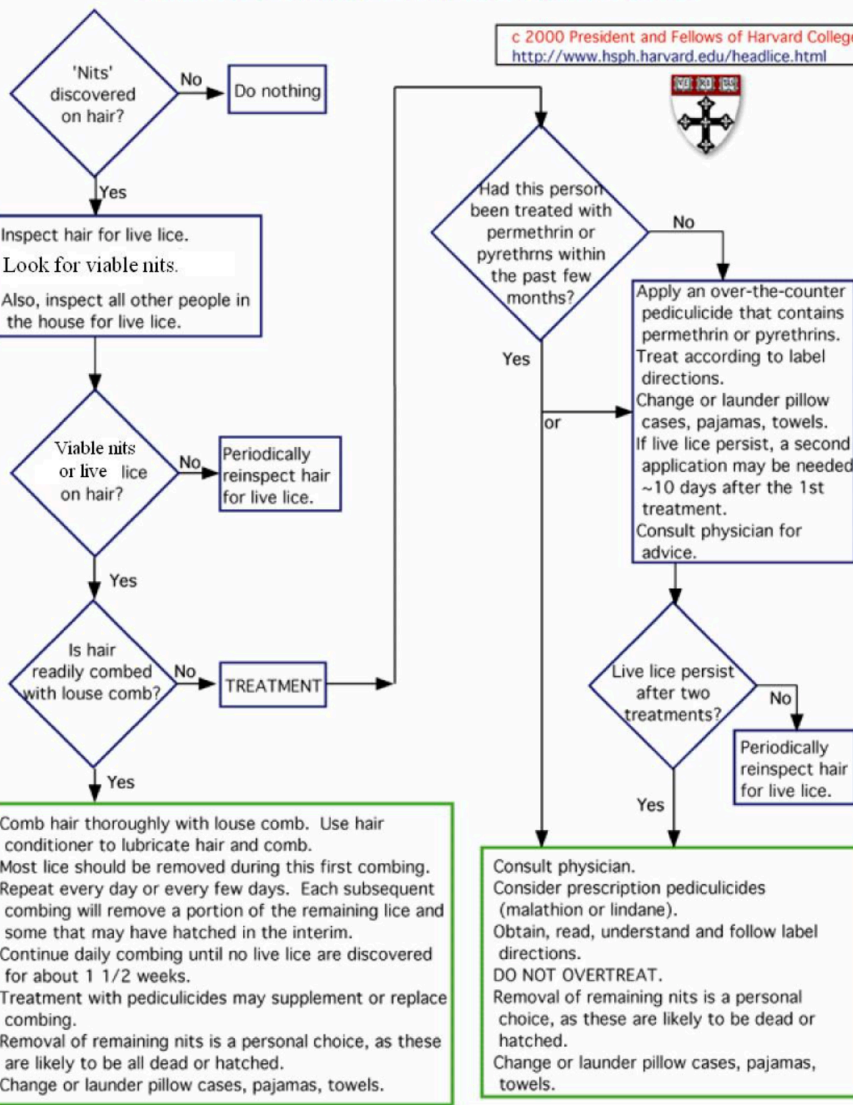
- Any student with no live lice, but nits farther than one quarter inch from the scalp should return to class.
 - If nits are found within one quarter inch of the scalp, educate the parents about the need for removal of those potentially viable eggs and return the child to class. School personnel re-check for lice and nits the next school-day to verify removal of potentially viable nits.
3. Periodic checks of the student's hair by designated school personnel should be done over the next few weeks to assure successful treatment. **Remember, confidentiality is important.
 4. Request parent to continue daily lice checks and nit removal for the next two to three weeks.
 5. Retreat as necessary according to product label.

Recurrent or Chronic Cases (Continued active infestation after appropriate treatment has started, persistent infestation after six consecutive weeks, or three separate cases within one school year.)

- Multidisciplinary group consisting of parent, teachers, administrators, social workers, school nurse, and other appropriate individuals to determine the best approach to resolving the issue and improve school attendance.

Scheme for managing presumed head louse infestations

c 2000 President and Fellows of Harvard College
<http://www.hsph.harvard.edu/headlice.html>



Primary References on Head Lice

- Barbara. L. Frankowski and Joseph A. Bocchini. Clinical Report – Head Lice. American Academy of Pediatrics; 2015: 392-403.
- Shujuan Li, Dawn Gouge, Shaku Nair, Al Fournier, and Mike Wierda. Head Lice: Identification, Biology, and Integrated Pest Management. University of Arizona College of Agricultural and Life Sciences Cooperative Extension. November 2015.
- Michigan Head Lice Manual: A Comprehensive Guide to Identify, Treat, Manage, and Prevent Head Lice. 2013.
- Georgia Department of Public Health Head Lice Manual. 2012.