Head Lice in Children

A Real Head Scratcher for the Community

A Presentation by the

National Association School of Nurses

Head Lice: Pediculosis ("Cooties")

- Blood-feeding insect parasites
- Attach to head and neck hairs to feed from human hosts
- Do not transmit disease, but do cause other negative effects, such as itching and loss of sleep
- Most serious consequences of lice include the social cost of missed school days and associated cost of lost productivity and wages of parents who must care for children sent home from school.

Photo credit: A. Hebert MD

Hansen , RC (September 2004). Overview: The State of Head Lice Management and Control. *Am J Manag Care*, 10, S260-S263.

Head Lice

- 6 to 12 million cases/year in the U.S.
- Organism: *Pediculus capitis*
- Signs
  - Presence of live lice
  - Pruritus (itching)
  - Tickling sensation
  - Irritability and sleeplessness
  - Scalp sores and, rarely, secondary infection

www.webiocosm.com

1. Frankowski BL, et al. *Pediatrics*. 2002;110:638-643.
2. CDC. Available at: http://www.cdc.gov/lice/index.html. Accessed April 21, 2010.

Pediculosis: Epidemiology

- Highest incidence among children 3 to 12 years old
- About 1 in every 100 U.S. elementary school children will be infested each year
- More frequent in girls
- Not a sign of uncleanliness
- All ages, socioeconomic, ethnic groups affected
- Less frequent in African Americans
  - Oval-shaped hair shaft
  - Lice in U.S. adapted to grasp round hair shaft

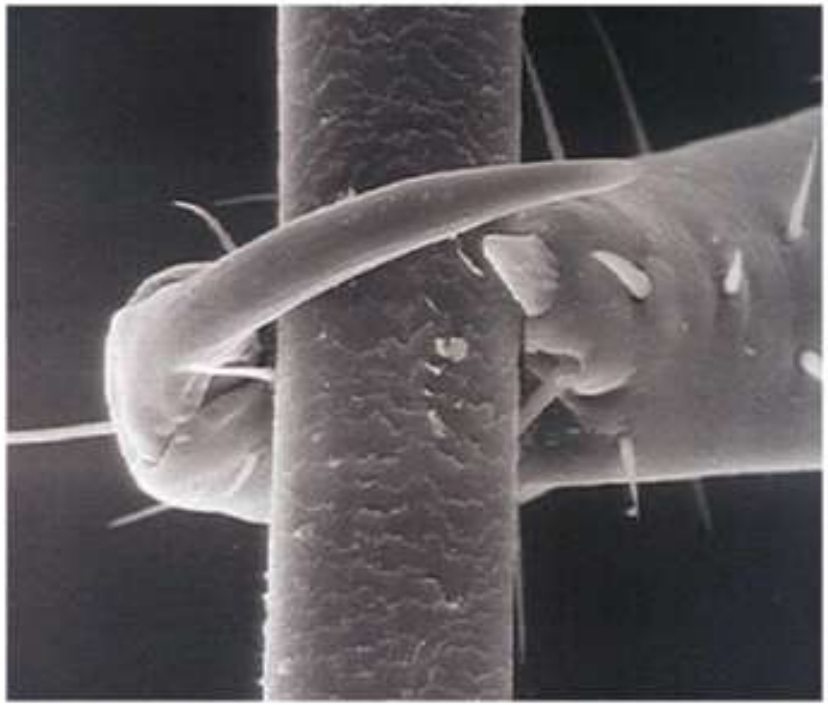


Photo credit: TL Meinking PhD

Louse grasping round hair shaft

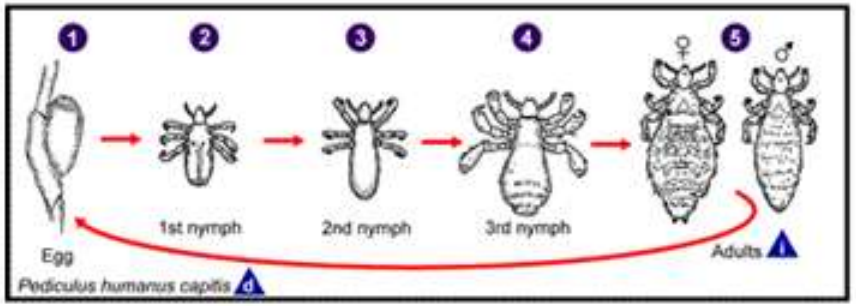
Frankowski BL, et al. *Pediatrics*. 2002;110:638-643.

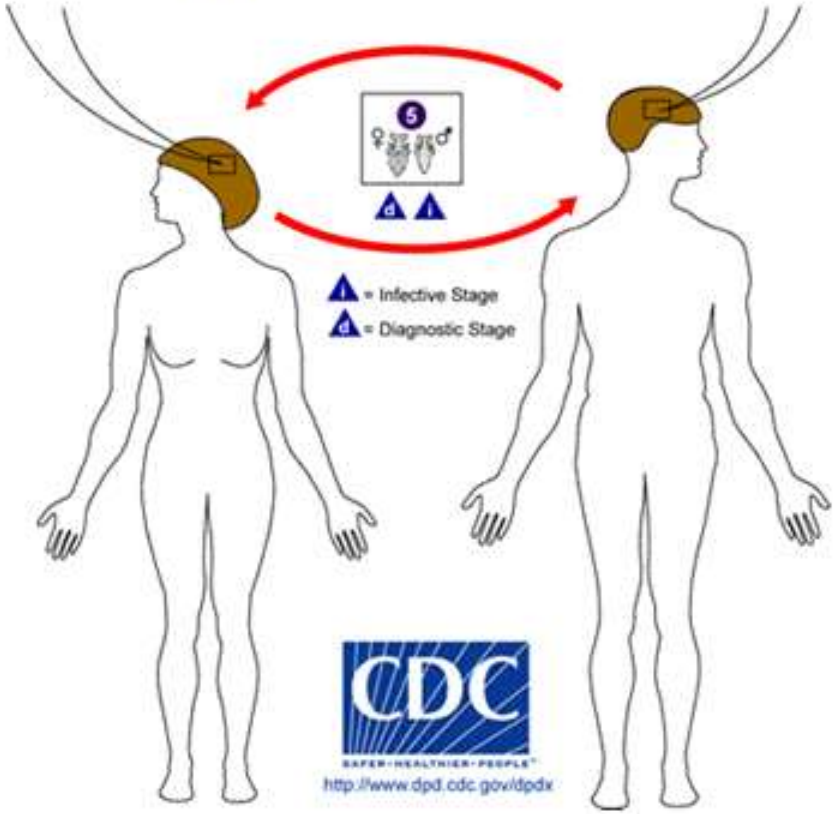
Life Cycle of Head Louse

- 20 to 25 days as a nymph
- 5 days as an adult
- Eggs laid close to the scalp; 5-10 eggs per day
- Mate every 3-4 hours
- Survive 23-30 days
  - Nits can survive 6–20 hours away from the host
- Require a warm environment and blood meal to survive

1. Hansen , RC (September 2004). Overview: The State of Head Lice Management and Control. *Am J Manag Care,* 10, S260-S263.
2. Meinking TL. Infestations. In: *Pediatric Dermatology.* 3rd ed. Mosby; 2003:1141-1160.

Life Cycle of the Head Louse





The Louse Family

Photo courtesy of TL Meinking

Keys to Effective Management of Head Lice

- Community approach to education
  - School professionals
  - Healthcare providers
  - Caregivers
  - Health departments, etc
- Accurate diagnosis
  - Prevents unnecessary treatment
- Effective treatment
  - Good efficacy to reduce re-treatment, resistance

1. Schoessler SZ. *Am J Managed Care*. 2004;10(9SUP):S273-S276.
2. Hansen , RC (September 2004). Overview: The State of Head Lice Management and Control. *Am J Manag Care,* 10, S260-S263.

Diagnosis

- Definitive diagnostic standard: presence of live louse on the head, or nit within 1 of scalp. In warmer climates, viable nits may be present >1 cm away from the scalp.
- Inspect in a well-lit area using a magnifying glass
- Some studies conclude that "wet combing" increases visual diagnosis
- Examine the entire scalp, with special focus behind the ears and nape of neck
- Itching may or may not be present
- Scabs on scalp

1. Frankowski BL, et al. *Pediatrics*. 2002;110:638-643.
2. Ko CJ, Elston DM. Pediculosis. *J Am Acad Dermatol*. 2004;50:1-12.
3. Jahnke C, Bauer E, Hengge UR et al. Accuracy of diagnosis of pediculosis capitis: visual inspection vs wet combing. Arch Dermatol.2009 Mar;145(3):309-13.
4. CDC. Available at: http://www.cdc.gov/lice/head/diagnosis.html. Accessed April 27, 2010.

Relative Size of Louse

Photo courtesy of A. Hebert, MD

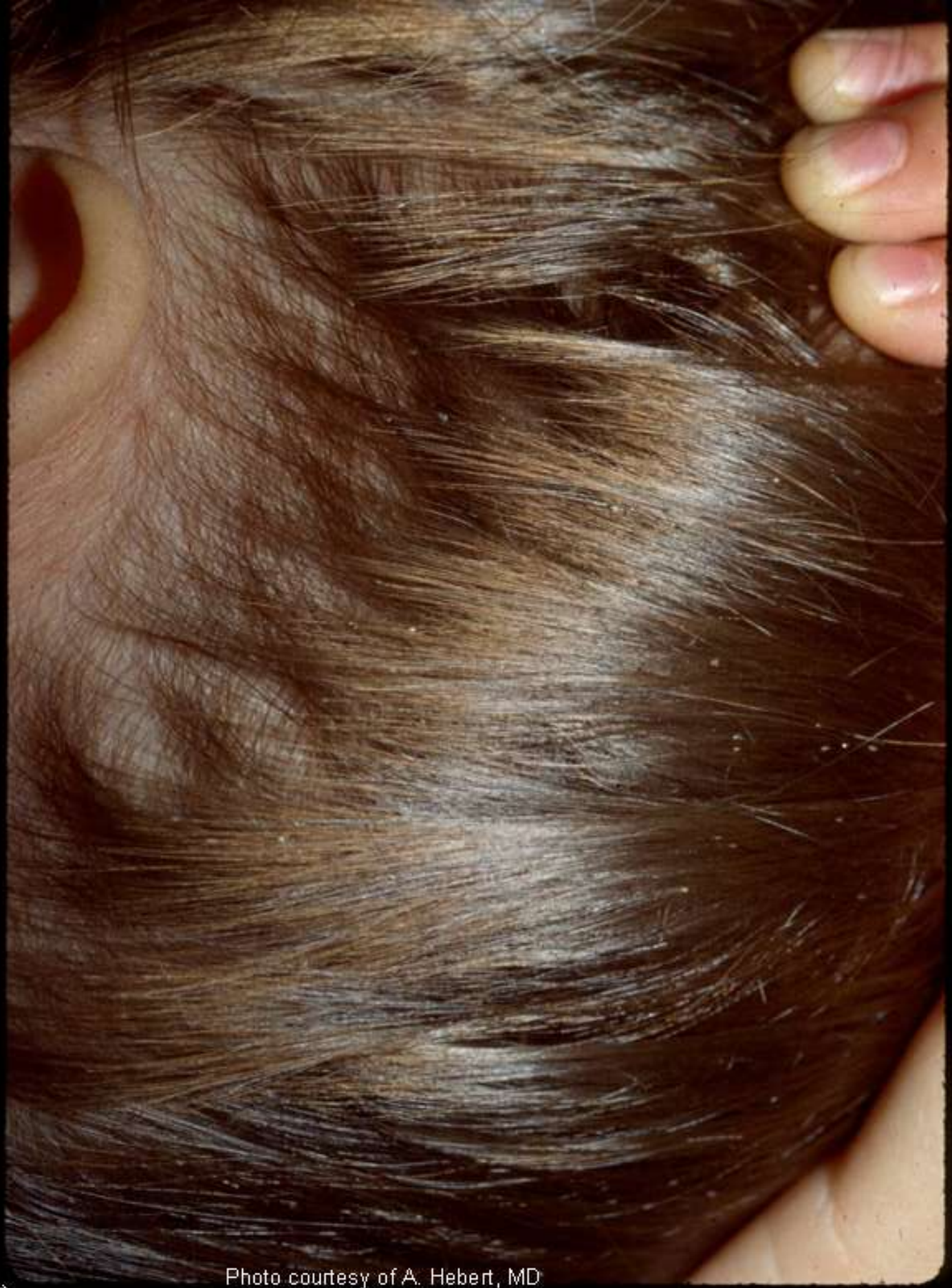


Photo courtesy of A. Hebert, MD

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Photo courtesy of A. Hebert, MD

Transmission

- The primary mode of transmission is "head:head" direct personal contact
- Secondary transmission is through sharing of personal items
  - Brushes, combs
  - Headgear
  - Bedding
- Lice *do not* jump, fly, or crawl long distances

  Infestation can occur throughout the year
  - Peaks during summer and back to school

1.Frankowski BL et al. *Pediatrics.* 2002;110:638-643.
2.Hansen, RC (September 2004). *Am J Manag Care,* 10, S260-S263.

Treatment Challenges

- Improper use of treatment (overuse/underuse)
  - Can result in resistance
  - Treatment failure
  - Safety issues
- Misdiagnosis
  - Results in unnecessary treatment
- Failure to treat

1. Hansen , RC (September 2004). *Am J Manag Care,* 10, S260-S263.
2. Meinking TL. *Am J Manag Care*. 2004;10(9 Suppl):S264-S268.
3. Pollack RJ. Head Lice Information. Available at: http://www.hsph.harvard/edu/headlice.html. Accessed April 26, 2010.

Treatment Selection: Merging the Art with the Science

Consider the following:

- Clinical expertise of the provider
- Evidence from all sources
  - Evidence from research and theory
  - Clinical expertise
  - Assessment of the patient history, condition, available resources
- Patient preferences and values

Melnyk BM. Chapter 1: Evidence-Based Practice (3-17) and Chapter 2: Asking Compelling Clinical Questions (25-29). In: *Evidence-Based Practice in Nursing & Healthcare, A Guide to Best Practice*; Lippincott Williams & Wilkins; 2005.

Merging the Art with the Science

All within the context of caring

Leads to:

Shared clinical decision-making between the family and provider

Resulting in:

Quality patient care and outcomes

Melnyk BM. Chapter 1: Evidence-Based Practice (3-17) and Chapter 2: Asking Compelling Clinical Questions (25-29). In: *Evidence-Based Practice in Nursing & Healthcare, A Guide to Best Practice*; Lippincott Williams & Wilkins; 2005.

Common Treatment Overview

- Over-the-counter (OTC) products
  - pyrethrin (RID®, Pronto® Plus, A200®, generics)
  - permethrin (Nix®)
- Prescription treatments
  - benzyl alcohol lotion 5% (Ulesfia Lotion 5%)
  - malathion (Ovide® Lotion, 0.5%)
  - lindane (Lindane Shampoo)
    - Banned in California
- Alternative treatments (natural and home remedies)

Meinking TL. The Clinical Trials Supporting Benzyl Alcohol Lotion 5% (Ulesfia™): A Safe and Effective Topical Treatment for Head Lice (Pediculosis Humanus Capitus). *Ped Derm* 2010; 27(1);19-24.

Treatment Comparison

OTC

- Limited controlled clinical data
- Affordable
- Generally safe
- Not 100% ovicidal
- Widespread resistance
- Repeated treatments necessary

Prescription

- Requires definitive evidence of efficacy and safety
- FDA approval
- Possible coverage by insurance
- Not 100% ovicidal

Alternative

- Not regulated by FDA
- Manual removal (combing)
- "Natural" products
  - Tea tree oil
  - Anise oil
  - Not required to meet FDA efficacy and safety standards
- Occlusive agents
  - Petroleum jelly
  - Mayonnaise
  - Margarine
  - Olive oil
- Flammable agents should be avoided
  - Kerosene
  - Gasoline

1. Burkhart CG. *Mayo Clin Proc*. 2004;79:661-666.
2. Meinking TL, et al. *Arch Dermatol*. 2001. 137;287-292.
3. Lebwohl M, et al. *Pediatrics*. 2007;119(5)
4. Ellis EF, et al. *Am J Manag Care*. 2004;10(9Suppl):S283-S286.
5. Jones KN, et al. *Clin Infect Dis*. 2003:36:1355-1361.
6. Frankowski BL, et al. *Pediatrics*. 2002;110:638-643.

Treatment Failure

- Presence of live lice after two treatments with OTC products
- Patient cannot tolerate product
- Usually requires a prescription pediculicide

Pollack RJ. Head Lice Information. Available at: http://www.hsph.harvard/edu/headlice.html. Accessed April 26, 2010.

Resistance

- A concern with many head lice treatments
- Like bacteria to antibiotics, lice have shown themselves to adapt to many treatments, thus leading to resistance
- Documented resistance to:
  - OTC permethrin/pyrethrins
  - Lindane
  - Malathion – in the UK, not in US

Meinking TL. *Am J Manag Care*. 2004;10(9 Suppl):S264-S268.

For Any Product

- Evaluate the peer-reviewed literature
  - Efficacy
  - Level of evidence
- Understand the product information and safety
  - Use of any product should follow manufacturer's directions
  - Rinse hair over the sink to avoid total body exposure to product
  - Cover eyes
- Collaborate with healthcare providers
  - Avoid diagnostic confusion
  - Seek help for treatment failure

Environmental Considerations for Head Lice Treatment

Environmental Control

- Screen others in direct contact with person who has head lice
- Launder clothes, bedding, towels and items used by infested person in the past 48 hours (130°)
- Wash and dry all items on bed, exposing to hot temperatures
- Do not share items such as grooming aids, hats, towels, clothing, pillows
- Vacuum floors, carpets, and furniture
- For items that cannot be washed, seal in a plastic bag for 2 weeks or dry clean

1. Burkhart CN, Burkhart CG. *Am J Am Acad Dermatol.* 2007;56:1044-1047.
2. CDC. Available at: http://www.cdc.gov/lice/head/treatment.html. Accessed on April 21, 2010.

Preventing Head Lice

- Very difficult
- Avoid head-head contact
- Encourage children not to share personal items such as hats, brushes, pillows, etc
- Employ weekly screening of children and family members if exposure suspected

Frankowski BL et al. *Pediatrics*. 2002;110:638-643.

Challenges and Issues with Head Lice

- Misdiagnosis
  - Results in unnecessary treatment
  - "No nit" policies keep children out of classroom
  - Embarrassment
  - Negative effects on learning
- Improper use of treatment (overuse/underuse)
  - Can result in resistance
  - Treatment failure
  - Safety issues
- Indirect costs: childcare expenses, lost wages
- Direct costs: pediculicides, office visits
- Caregiver strain

1. Hansen , RC (September 2004). *Am J Manag Care,* 10, S260-S263.
2. Gordon SC. Shared Vulnerability: A Theory of Caring for Children With Persistent Head Lice. *J of Sch Nursing* 2007;23(5);283-292.

Impact of Head Lice on the Community

- Annually, millions of dollars spent on
  - Treatments and lice combs
  - Physician visits
  - Parental time away from work
- Study of attendance records found 12 to 24 million school days are lost annually in U.S. due to exclusion of students for lice and nits
- Embarrassment and social stigma accompany diagnosis of head lice

National Association of School Nurses Position Statement. Available at: http://www.nasn.org/Default.aspx?tabid=237. Accessed April 9, 2010.

Consequences

Social

- Entire family affected
- School head lice policies (exclusion)
  - Need for alternate childcare
  - Negative effects on learning
  - Embarrassment, social stigma

Psychological

- Caregiver strain
- Shared vulnerability
  - Ostracized
  - Lose integrity of self
  - Struggling with persistence
  - Managing strain

Financial

- Indirect costs
  - Childcare expenses
  - Lost wages
- Direct costs
  - Pediculicides/treatment
  - Doctor visits

1. Hansen AJMC 2004
2. Frankowski BL, et al. *Pediatrics.* 2002;110:638-643.
3. Gordon SC. *J Sch Nurs.* 2007;23:283-292
4. West DP. *Am J Manag Care.* 2004;10(9 Suppl):S277-S282.

NASN Position: NO to "no nits" Policies

- Pediculosis should not disrupt the education process
- Children found with live head lice should be referred to parents for treatment
- Data does not support school exclusion for nits
- Further monitoring of reinfestation is appropriate
- Collaboration with healthcare providers and the community is an important role of the school nurse

National Association of School Nurses Position Statement. Available at: http://www.nasn.org/Default.aspx?tabid=237. Accessed April 9, 2010.

School Nurse

Pivotal role in diagnosis, education, and referral

- Educate and support treatment attempts
- Help alleviate caregiver strain
- Understand and validate struggles
- Use rational and evidence-based approach to treatment and evaluation
- Discourage adversarial, ostracizing policies
- Encourage use of community healthcare resources
- Safeguard the education and privacy of every child while managing head lice in schools
- Participate in research

1. Gordon SC. *J Sch Nurs*. 2007;23:283-292.
2. Schoessler AZ.. *Am J Manag Care*. 2004;10(9 Suppl):S273-S276.

Summary of Head Lice Treatment

- Accurate diagnosis
- Product safety
- Evidence-based product efficacy
- Lack of resistance
- Ease of use
- Caregiver education
- Environmental considerations
- Healthcare provider collaboration

Frankowski BL, et al. *Pediatrics*. 2002;110:638-643.

Conclusions

- Head lice are not a medical hazard, but a "pesky" situation with social, psychological, and financial consequences
- It takes a village to cure a head lice infestation!
- The model of a managed, well-controlled approach to head lice treatment requires a "tool box" of resources aimed at:
  - Accurate diagnosis
  - Safe and effective treatment
  - A solid foundation of community education and assistance

"I THINK SOME PARENTS ARE GETTING FED UP WITH NIT-PICKING."

This program is supported through an educational grant
to the National Association of School Nurses
from Shionogi Pharma, Inc.

SHIONOGI PHARMA, INC.