

JAIL BULLETIN

Number 85

April, 1992

HUMAN LICE AND THE CONTROL

This Jail Bulletin, reprinted from NebGuide, describes the three types of lice that infest humans and provides information on their control, including products available for use.

Pediculosis (lice infestation) in humans has been known since ancient times. There are three types of lice that infest humans: 1) head lice, 2) body lice, and 3) crab or pubic lice.

Lice are very small, flat, dirty white to grayish black, wingless insects. Their legs are short and stout, with a large claw on each leg for grasping and holding onto hair. Lice have piercing and sucking type mouth parts. These insects are blood feeders and require close contact with human hosts.

Lice have three stages in their life cycle: egg, nymph (young), and adult. The newly hatched nymphs are identical in appearance to their parents except in size and development of reproductive organs. Nymphs gradually develop into adults, periodically shedding their skin (moulting) during the process. The life cycle (egg to egg) takes approximately 15 to 35 days (Figure 1). Lice spend their entire life as ectoparasites on humans and, unlike other insects, they have a constant environment. Their close contact with human skin ensures constant temperatures of 82 degrees to 86 degrees Fahrenheit, and an abundant food supply. Lice do not voluntarily leave their hosts unless the body temperature substantially changes due to death or high fever. Once dislodged from a person's body or clothing, they will infest a new human host in the immediate proximity. If a new host is not found within eight days, the lice will starve to death.

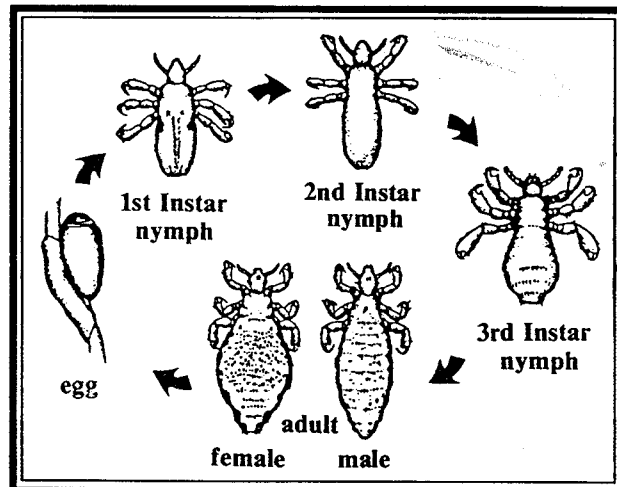


Figure 1. Life cycle stages of the human lice.

LICE INFESTATION

Lice infestations are common throughout the world. In the United States alone an estimated ten million cases of pediculosis occurred during 1985. Lice are spread through sharing contaminated clothing, hats, scarves, combs, hair brushes, and other head gear, or as a result of close physical contact with an infested person. Other occasional sources are bedding, furniture, rugs, and floor surfaces where dislodged lice may be present.

Once infested, an individual generally carries a few dozen lice. However, some persons have been known to carry several hundred lice, with one to two thousand lice being carried on rare occasions. Pets normally do not carry human lice.

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DAMAGE

Irritation

Lice use their piercing-sucking mouth parts to penetrate the skin for a blood meal. During feeding, they inject a saliva which causes irritation and subsequent itching. Children under 12 years old are more sensitive to lice feeding than are other age groups. Scratching louse bite areas frequently causes abrasion, which may become infected with other micro-organisms. Prolonged lice infestation causes a hardening and pigmentation of the skin known as "vagabond's disease."

Even though people experience unpleasant feelings as a result of lice infestation, they often deny pediculosis because of feelings of disgust and shame.

Disease Transmission

Of the three lice species, only body lice have been known to transmit disease organisms. Relapsing fever, typhus, and trench fevers were transmitted by body lice in Europe during World Wars I and II. Fortunately, at present there are no known cases of these diseases in the United States.

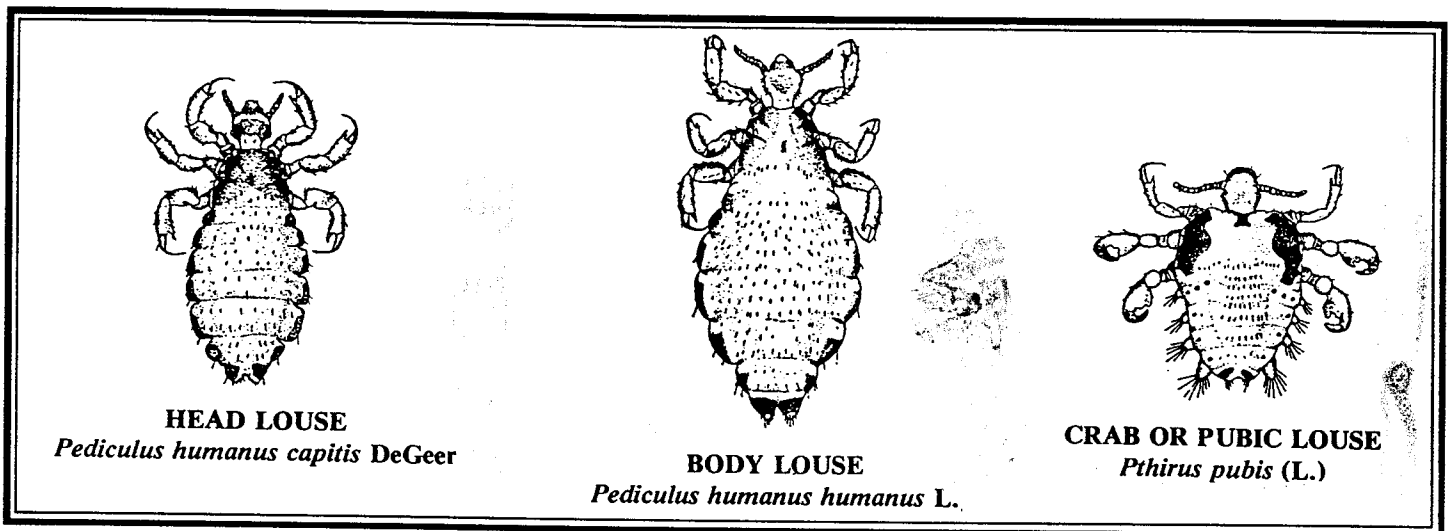


Figure 2. Human lice adults.

LIFE CYCLE

The three types of human lice cited earlier differ considerably in habitat and, to a small degree, in their life cycle.

Head Louse (Figure 2)

In Nebraska, the head louse is the most widespread and important of the human lice. Although anyone can acquire head lice, infestations are most common in preschool, kindergarten, and elementary school aged children. Louse outbreaks generally occur from August to May when schools are in session.

The fertilized adult female lays 4 to 6 eggs (nits) per day, usually at night. In her lifetime, a female lays approximately 50 to 150 eggs. While depositing eggs, she secretes a glue-like substance with which the eggs are attached to hair near the scalp. The eggs are cylindrical, yellowish-white, and 1/30 inch long--about the size of a fine sand particle. The eggs hatch into nymphs (young) in 5 to 10 days. Newly hatched transparent nymphs take their first blood meal within hours. Later these nymphs change to a dirty white to light straw color. They feed at fairly frequent intervals, at least twice daily. In 8 to 9 days, nymphs grow into adults after three skin sheddings (moultings). The adult male (1/12 inch long) and female (1/8 inch long) mate within 10 hours, and may mate often throughout the remainder of their lives.

One to two days after reaching maturity, the female is ready to lay eggs. The life cycle (egg to egg) is completed in 15 to 21 days. The adults are dirty white to grayish black, and live approximately 20 to 30 days. The adult color generally depends on the color of the substrate on which the nymphs develop. Head lice on blond hair appear paler than those on black or brown hair.

All head louse life stages are found in the hair near the scalp. They are prevalent on the back of the neck and behind the ears. Head lice are very rarely found on eyelashes or other hairy parts of the body. In severe infestations the hair may become matted as a result of exudates from louse bites. Head lice can survive 3 to 4 days once dislodged from the host.

Head lice are transferred from person to person through physical contact, and the communal use of combs, hair brushes, head apparel, towels, bedding and personal clothing.

Body Louse (Figure 2)

The body louse, or cootie, is very similar to the head louse in physical appearance except it is 10 to 20% larger. This insect is generally associated with unclean environments where inadequate bathing or clothes sharing occur. The body louse lives on clothing that comes in close contact with the human body, such as the waistline and crotch of trousers, shirt armpits and collars, and underwear. This insect visits the human body only to obtain a blood meal.

The life cycle of the body louse is similar to that of the head louse in many aspects. The fertilized female adult lays 9 to 10 eggs per day, and may lay 270 to 300 eggs in her lifetime. The eggs are preferably glued to fibers of clothing, usually in seams, and occasionally to coarser body hair. Eggs hatch in 6 to 9 days. Newly hatched nymphs begin to suck blood at once and feed frequently during the day or night, especially when the host is quiet. Nymphs mature to adults in approximately 16 to 18 days, after three skin sheddings (moultings). Newly emerged adult males, 1/11 inch long, and females, 1/6 inch long, mate within a day. The female begins laying eggs one or two days after reaching maturity. The life cycle (egg to egg) is completed in 22 to 28 days. The adults are grayish white, and live approximately 30 to 40 days. After discontinued contact with the host, body lice can survive 8 to 10 days. Body lice are spread through contact with infested persons or their clothing.

Crab or Pubic Louse (Figure 2)

This louse has a crab-like appearance and is grayish white. It infests the pubic region of the body, but in severe infestations may be found in armpits, mustaches, beards, eyelashes, and eyebrows.

Fertilized adult females lay 3 eggs per day for a total of 26 eggs in their lifetime. The oval, whitish eggs, 1/50 inch long, are glued to coarser hair near the skin. The eggs hatch after 6 to 8 days. The newly hatched nymphs start sucking blood immediately. The nymphs grow into adults after three skin sheddings (moultings) in 15 to 17 days. The life cycle (egg to egg) is completed in 34 to 41 days. The adults are 1/16 inch long and live for a month on human hosts. If they are dislodged, they can survive less than 24 hours.

Both nymphs and adults tend to settle on one spot, and feeding continues intermittently for hours or days. This insect is spread by intimate physical contact, and possibly through infested bedding and clothing.

CONTROL

Human lice can be successfully controlled through:

1. Recognition of infestation,
2. inspection,
3. personal hygiene and sanitation, and
4. chemical treatment.

Recognition of Infestation

Irritation or constant scratching of the scalp or other body parts may be the first clue of lice infestation. Bloodspotted undergarments or bedding may also be signs of infestation.

Inspection

Once suspected, closely inspect the scalp, head hair, and hair of other body regions to confirm lice infestation.

Also inspect clothing and bedding. It is a good idea to inspect individuals with a history of lice infestations every two weeks, and to check all family members or other persons who might have come in contact with an infested person.

Personal Hygiene and Sanitation

1. Bathing daily with soap and thoroughly washing hair with shampoo is important to prevent and control lice infestation. Once a lice infestation is encountered, apply medicated shampoo and remove lice by combing the hair with a specially designed nit comb, available at pharmacies. Metal combs are the best. Personal hygiene to control body lice is the necessary aspect.

2. Soak all combs, brushes, and other hair care items for one hour in a louse shampoo solution, or in water heated to 130 degrees Fahrenheit for 5 to 10 minutes.

3. Do not share combs, brushes, caps, hair-related items, or clothing with a person suspected of lice infestation. Also, avoid close physical contact with lice infested people and their belongings.

4. Machine wash in hot water (over 130 degrees Fahrenheit) or dry clean all clothing, including coats, hats, scarves, pillow cases, towels, and bedding materials, coming in contact with an infested individual.

5. Materials that cannot be washed or dry cleaned should be tightly sealed with plastic and stored at room temperature or lower for a minimum of two weeks. This procedure will kill eggs, nymphs, and adults by desiccation (drying) and starvation.

6. Use a vacuum cleaner to remove lice from couches, chairs, mattresses, carpeting, rugs, and other furniture if these items came in contact with lice infested persons.

Chemical Treatment

There are several excellent medicated shampoos, lotions, and other products available for louse control. These products can be purchased at various stores or over the counter at most pharmacies. Some medications require a prescription.

Before using insecticides (medications) for louse control, always **READ, UNDERSTAND, AND FOLLOW** all label directions and precautions. Keep insecticides in original containers, out of reach of children, and do not contaminate food or water.

A) Over-the-counter products available at pharmacies include:

Pyrinate A-200
Rid
Triple X
R & C Spray
R & C Lice Treatment Kit

All of these products contain pyrethrins and piperonyl butoxide as active ingredients. Please follow the directions and precautions indicated on the label and also suggestions made by the pharmacist.

B) Physician's prescription products:

Kwell, 1% Lindane
Prioderm, 0.5% malathion

Use these products according to directions on the label or as specified by your physician.

C) Other products:

Para-tol
TISIT
Barc Gel
Share Personal Insecticide

All of these products contain pyrethrins and piperonyl butoxide as active ingredients. These products are registered for louse control in Nebraska, and may be available at various stores.

Use all pesticides safely. Read the pesticide product label completely and comply with all directions given. Failure to do so may subject you to sanctions or penalties provided by federal and/or state laws.

This Jail Bulletin is a reprint of material available in the NebGuide published by Cooperative Extension Service Institute of Agriculture and Natural Resources, University of Nebraska - Lincoln.

QUIZ

Nebraska Jail Standards require that jail staff receive eighteen (18) hours of in-service training each year. The Jail Bulletin may be used to supplement in-service training if an officer studies the Bulletin, completes the quiz and this process is documented by the jail administrator for review during jail inspections.

SUBJECT: HUMAN LICE AND THEIR CONTROL

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NAME _____

DATE _____

1. The most common human lice in Nebraska is the _____
2. There are no known cases of disease transmitted by lice in the United States.
TRUE FALSE
3. Crab lice can survive less than _____ hours if dislodged from a host.
4. Washing clothes and bedding in hot water (over 130 degrees) will kill lice.
TRUE FALSE
5. Head lice can survive _____ to _____ days once dislodged from the host.

CREDIT: *One-half hour credit for Jail Inservice Training requirement.*

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1. The most common human lice in Nebraska is the **HEAD LOUSE.**
2. There are no known cases of disease transmitted by lice in the United States.
TRUE FALSE
3. Crab lice can survive less than 24 hours if dislodged from a host.
4. Washing clothes and bedding in hot water (over 130 degrees) will kill lice.
TRUE FALSE
5. Head lice can survive 3 to 4 days once dislodged from the host.

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