PEDICULOSIS (Outbreaks only)

1. **Agent**: Pediculus humanus capitis, the head louse; Phthirus pubis, the pubic louse; Pediculus humanus corporis, the body louse.

2. **Identification**:

   a. **Symptoms**: Itchiness (or may be asymptomatic) or infestation of the scalp or the hairy parts of the body (including eyebrows) with adult lice, larvae, or nits (eggs). Sores on the head caused by scratching. Patients with pubic lice may have bluish-colored macules on chest, abdomen, or thighs (maculae ceruleae).

   b. **Differential Diagnosis**: Scabies, eczema, impetigo, and insect bites.

   c. **Diagnosis**: Visualization of nits or lice microscopically or clinically. These are commonly found behind the ears and near the back of the neck.

3. **Incubation**: From egg (nit) to first nymph is 6- 9 days. It takes 2-3 weeks from hatching of eggs to mature louse capable of reproduction.

4. **Reservoir**: Human. Children ages 3–11 years are considered highest risk.

5. **Source**: Infested person.

6. **Transmission**: Direct contact with hair of infested person or head-to-head contact with an infested person; less commonly, indirect contact with their personal belongings, especially head coverings, clothing, combs, brushes, helmets, and head phones. Lice cannot jump or fly.

   Lice is not typically an environmental concern as they die quickly (within 24 hours) without human hosts. Lice do not infect environments. Lice are more commonly found in people who have a lack of treatment, inadequate care or gaps in medical coverage.

7. **Communicability**: While viable lice and eggs remain on infested person and clothing. (Head lice survive only 1-2 days away from the scalp, and nits are unlikely to hatch away from the scalp.)

8. **Specific Treatment**: Permethrin lotion 1% (Nix® creme rinse), or pyrethrin (RID®, A-200®, R&C®) pediculicidal shampoo can be used to treat both head and pubic lice. Treatment may need to be repeated one week later for resistant or newly hatched lice, as it does not affect nits. Results are best when combined with nit combing every 3 days for 2 weeks.

   Permethrin is approved for use on children 2 months of age and older.

   Spinosad topical suspension, 0.9% (Natroba®) is approved for the treatment of children 6 months of age and older. It is applied and worked through dry hair and may not require nit combing or repeat treatment.

   Ivermectin lotion 0.5% (Sklice™) is FDA approved for children 6 months of age and older. The prescribed lotion is applied to dry hair, thoroughly coating the hair and scalp, then removed after 10 minutes.

   Benzyl Alcohol Lotion 5% (Ulesfia® Lotion) applied to the scalp and hair is a prescription medication for treatment of head lice in children over 6 months of age and adults.

   Treatment may need to be repeated one week later for resistant or newly hatched lice.

   Results are best when combined with nit combing every 3 days for 2 weeks. It can be irritating to the skin.

   Treatment with Malathion lotion (Ovide®) may be considered when other treatment failures occur. Ovide® is not indicated for neonates or infants. While it has the benefit of effectiveness on nits, it must be followed with caution as the lotion is flammable. Do not expose the lotion and wet hair to open flames or electric heat sources, including hair dryers and electric curlers. Do not smoke while applying lotion or while hair is wet; allow

hair to dry naturally and remain uncovered after application.

Body lice need no specific treatment except improving hygiene and cleaning clothes.

9. **Immunity**: None.

REPORTING PROCEDURES

1. **Outbreaks reportable**. *California Code of Regulations*, Section 2500. Investigation can be conducted by telephone. In-person site visits might be considered for locations that require extra guidance (i.e., locations with vulnerable or special needs populations), have special considerations, or if requested.

2. **Outbreaks** include 5 or more epi-linked confirmed or suspected cases with symptoms consistent of lice occurring within a 2-week period.

   In settings where an epi-linked group is fewer than 15 people (such as a single classroom, sports team, or after-school group) or congregate living settings, such as long-term care facilities, non-acute care hospitals, jails, and prisons, the minimum number of cases required to open an outbreak is lowered to 3.

3. **Report Form:**

   OUTBREAK/UNUSUAL DISEASE REPORT (CDPH 8554) (out-breaks only).

   For outbreaks in non-acute care hospitals such as a skilled nursing facility, intermediate healthcare facilities, or congregate living health facilities: CD Outbreak Investigation—Sub-Acute Health Care Facility (H-1164, Sub-Acute)

4. **Epidemiologic Data**:

   a. Site of infestation.

   b. Contact with infested persons or fomites.

   c. School or other group contacts should be identified (e.g. day-care centers).

      Line lists are not generally required but may be considered or mandated on factors such as vulnerability of the population and severity of outbreak. Line Lists are not routinely recommended for worksites or educational settings.

CONTROL OF CASES, CONTACTS & CARRIERS

LA County DPH and the CDPH do not require exclusion or isolation of cases and contacts. Risk of lice transmission in congregate settings such as schools is low, and exclusion can have adverse effects on academic, social, and emotional well-being. Additional information can be found within the CDPH Lice Guidance and CDC Lice Information.

CASE:

1. Instruct patient, parent, or caregiver to treat infestation. Refer to the CDC Lice Treatment.

2. If a child is found to have lice for 6 consecutive weeks or 3 separate months of a school year, they are considered chronic cases. Schools must identify these cases and consider the appropriate approach, which may include consideration of socioeconomic factors. This scenario may prompt consultation from school administration, social services, and/or the local health department.

3. With of the presence of pubic lice, testing for other sexually transmitted infections is recommended.

Non-acute healthcare facilities or congregate living settings: Maintain contact precautions/isolation until treatment is completed and/or case is determined to be noninfectious by a healthcare clinician, dermatology consultant or other experienced designee.

CONTACTS:

Parents or caregivers may be notified of exposure and instructed to assess for lice infestation. These individuals should also be handed out educational material such as the CDPH Fact Sheet and the CDPH Head Lice Flyer.

Household members should be checked for head lice and treated if they have active lice.

Prophylactic treatment is not usually recommended; however, prophylactic treatment may be recommended for household members or other contacts who share the same bedding as infested individuals.

Non-acute healthcare facility or congregate living settings:

1. For outbreaks, assess extent of potential spread and extend prophylactic treatment for close contacts as appropriate.

2. Patient/Resident Contacts
   a. Identify and prepare a line listing (not required but recommended) of all patients/residents who were contacts to a patient/resident with lice during the exposure period.
   b. Examine in-house patient/resident contacts to determine the presence of signs and symptoms of lice. If symptomatic, manage as a case.

3. Healthcare Workers (HCW) Contacts
   a. Identify and prepare a line listing (not required but recommended) of all HCW who were direct contact to a patient/resident or fellow HCW with lice during the exposure period.
   b. Interview HCW to determine the presence of lice symptoms and possible source of exposure; manage as a case if symptomatic.

PREVENTION-EDUCATION

1. Discuss the recognition of infestation, especially with school nurses or aides.

2. Instruct infested individuals or family to delouse head or body according to medical or label instructions. All active cases should be treated at the same time.

3. Consult with pediatrician or family physician, reporting to them any skin irritations. Do not repeat treatment unless indicated or instructed by the physician.
4. Launder bed linens, towels, and clothing at proper temperature (130°F) then dry on hot cycle for at least 20 minutes; or dry clean or place items in tightly closed plastic bag for 2 weeks. Disinfest personal articles (combs, brushes, hair bands and barrettes, etc.) by boiling for 5 minutes or by soaking them in rubbing alcohol or Lysol® disinfectant for 1 minute. Vacuum rugs and upholstered furniture. Insecticide sprays are not recommended.

5. Advise parents to check child's scalp for lice and/or nits for 2 weeks following treatment.

6. CDPH and LA County DPH do not recommend no-lice nor no-nit policies.

7. There is no convincing scientific evidence to support the use of household products or other alternative therapies (olive oil, mayonnaise, petroleum jelly) to cure infestations. Individuals should be treated with the over-the-counter medication listed above or what is prescribed by their medical provider.

Non-acute healthcare facilities or congregate living settings:

If a resident has lice:

1. Any fabric items, such as clothing, bedding, and towels, that the resident may have had contact with two days prior to treatment should be laundered.
   a. These items can be machine washed in hot water and dried using the high heat cycle, as exposure to temperatures >130°F kills lice and nits within 5 minutes.

2. Belongings that cannot be laundered may be dry cleaned or placed in sealed plastic bags for two weeks to kill hatching lice (nits take 6–9 days to hatch and are unlikely to hatch away from the body).

3. Combs, brushes, picks, and other hair care items can be soaked in hot water (>130°F) for 5–10 minutes.

4. Furniture, carpeting, and other fabric-covered items that an infested resident sat or laid on can be vacuumed.

Pesticide application to the facility is not recommended.

Treatment

1. Upon diagnosis of a lice infestation in an individual(s), all residents that may have had close contact with the individual(s), including head-to-head contact or shared personal items, should be checked for lice and treated as needed. Treatment should be initiated for all infested residents at the same time whenever possible.

2. Employees/staff must follow the label instructions when administering lice-killing products for head lice or pubic lice. Some treatments kill only live lice, thus a second treatment 7–10 days after the first treatment may be necessary to kill any lice that recently hatched. Reports of resistance to some over-the-counter treatments have been reported in California and therefore, not all lice may be killed by treatment. Combing and removal of nits can help reduce the duration of infestation. CDPH recommends a combination of treatment with lice-killing products and nit combing. Several brands of nit combs are available at local pharmacies. Metal flea combs also work well for nit removal and can be purchased at pet stores. For further instruction on nit combing, please review the CDPH Nit Combing Guide.

Potential treatment failure observed:

1. Sometimes it may seem that the treatment used has failed when actually: 1) the substance on the hair shaft was misidentified as nits (i.e., dandruff, styling products, etc.), 2) treatment instructions were not followed properly, or 3) re-infestation with lice has occurred.

2. If a few live lice are still found 8–12 hours after treatment but the lice are moving more slowly than before, the product is probably working. Different products may take more time to kill lice. Comb dead and any remaining live lice out of the hair using a nit comb.

3. If after 8–12 hours, no dead lice are found and lice are as active as before, the treatment may have been applied incorrectly or may not be effective against this population of lice. Do not retreat until speaking with a healthcare provider; a different chemical class option may be necessary.

4. Additional information in Congregated Living Settings, refer to CDPH Guidance on the Treatment and Control of Head Lice and Pubic Lice in Congregate Living Settings

DIAGNOSTIC PROCEDURES

None other than clinical observation.