
PEDICULOSIS AND SCABIES

I. PURPOSE

The purpose of this policy is to assign actions and responsibilities for confirming an exposure of pediculosis (lice or scabies), identifying those people likely exposed to pediculosis or scabies and determining the risk of transmission and the appropriate follow-up activities.

II. POLICY

To prevent, evaluate, and treat pediculosis (lice) or scabies infestation of employees and patients.

III. PROCEDURE

A. *PEDICULOSIS (LICE)*

1. Clinical Presentation

Head lice infestation of the hair, eyebrows and eyelashes is caused by *Pediculus humanus capitis*. Infestation by body lice, *Pediculus humanus corporis*, is rarely found on the body, rather on the clothing of an infested person, especially along seams of the clothing's inner surfaces. Crab lice is caused by *Phthirus pubis*. Infestation is usually of the pubic area but in heavy cases may also be present in facial hair and eyelashes. Infestation of any type may result in severe itching, fever and excoriation of the scalp or body. Secondary infestation may occur with ensuing regional lymphadenitis. Diagnosis is made by visual identification of the lice or eggs on the infested person either with the naked eye or with the assistance of a hand held magnifying lens or microscope.

2. Transmission

For head and body lice, transmission is facilitated by direct contact with an infested person and/or objects used by them. In addition body lice may be spread by indirect contact with the personal belongings of infested persons, especially shared clothing and headgear. Head and body lice survive only about one week without a food and water source, crab lice only one to two days. Crab lice are usually spread via sexual contact. Humans are the only natural reservoirs for head, body and pubic lice. All household members and other close contacts should be checked; those persons with evidence of an active infestation should be treated

The life cycle is composed of three stages: eggs, nymphs and adults. The most suitable temperature for the life cycle is 32° C. Under optimal conditions the eggs of lice hatch in 7-10 days and egg to egg cycle is

about 3 weeks. The average life cycle of a body or head louse is 18 days while that of the crab louse is 15 days.

The period of communicability is as long as lice or eggs remain alive on the infested person or on fomites. The life span of the adult louse is one month. Lice eggs ("nits") remain viable on clothing for one month.

3. Treatment Agents

Head and pubic lice may be treated with 1% permethrin cream rinse, pyrethrins synergized with piperonyl butoxide, carbaryl, benzy benzoate, and 1% gamma benzene hexachloride lotions. Gamma benzene hexachloride resistance has been reported in a number of countries and should be used only for patients who are intolerant of other approved therapies. Gamma benzene hexachloride is not recommended for infants, young children, and pregnant or lactating women. None of these are 100% effective so re-treatment may be necessary after an interval of 7-10 days if eggs survive. Apply shampoo or lotion liberally to affected area for amount of time specified by package insert, then rinse thoroughly. **Pediculocides will not destroy all nits. Following application of the pediculocide, manual removal of the nits with a nit removal comb, is crucial to preventing recurrence and pesticide resistance.**

4. Environmental Decontamination

For body lice, clothing and bedding should be washed using the hot water cycle of an automatic washing machine or dusted with pediculocides using power dusters, hand dusters or 2 oz. sifter cans. Dusts recommended include 1% malathion, .5% permethrin, 2% Abate, 5% iodofenphos, 1% propoxur, 5% carbaryl 10% DDT or 1% gamma benzene hexachloride (resistance is widespread to DDT and gamma benzene hexachloride).

B. SCABIES

1. Clinical Presentation

Scabies is caused by a mite, *Sarcoptes scabiei va. hominis*, an arachnid related to spiders and ticks. It is just barely visible to the unaided eye, and is about the size of the period at the end of this sentence. The female mite burrows into the superficial layers of the skin where she deposits eggs (20-50) and fecal pellets. The initial lesion is a burrow 1/2-2 cm in length, with a papule or vesicle at its blind end, not associated with itching. However, this burrow is often missed, and is later obscured by the secondary eruptions. After several days, sensitivity to the mite results in severe pruritus followed by punctate excoriations from scratching. Lesions may later become secondarily infected with resulting impetigo, cellulitis, and furunculitis. A generalized urticarial rash may also develop.

The lesions are most commonly seen around finger webs, flexor surface of the elbows, axillary folds, between the shoulder blades, flexor surface of the wrist, belt line, thighs, abdomen, buttocks, external genitalia on men, and breasts and nipples on women. However in health care workers, the hands are a less common site due to frequent handwashing. Itching may be more intense at night. Among immunocompromised individuals infestation often appears as a generalized dermatitis with extensive scaling and sometimes vesiculations and crusting. In elderly persons, there may be no itchy rash, but there may be dry skin with thickened crusts and keratotic plaques that are heavily laden with parasites.

Clinical diagnosis is usually sufficient to render appropriate treatment, but in institutional clusters or outbreaks the diagnosis should be confirmed if possible. Confirmation is done by skin scrapings using a clear solution or mineral oil, KOH, or water with microscopic examination demonstrating the female mite. Negative scrapings, however, do not rule out infestation since a scraping is positive in only 75% of infections.

2. Transmission

The mite is transferred by direct skin-to-skin contact with infested persons. Prolonged skin-to-skin contact is required for transmission (e.g., applying body lotions with bare hands, giving a sponge bath with bare hands, sharing a bed, or sexual contact). Objects such as clothing, bed linen, and furniture play a minor role in transmission. Mites do not survive away from the host beyond 48 hours at room temperature.

In individuals who have not been previously infested, four – eight weeks is the typical time period between infestation and the onset of itching, although it can be as short as two (2) weeks and as long as three (3) months. In persons who have had scabies in the past and are sensitized to the mite, re-infestation may produce itching in two to seven (2-7) days.

The period of communicability is from original infestation (with or without symptoms until the mites and eggs are destroyed (twenty-four [24] hours after appropriate treatment). An infested individual may be contagious before the onset of itching or rash.

In addition to the infested person, treatment also is recommended for household members and sexual contacts, particularly those who have had prolonged direct skin-to-skin contact with the infested person. Both sexual and close personal contacts who have had direct prolonged skin-to-skin contact with an infested person within the preceding month should be examined and treated. All persons should be treated at the same time to prevent reinfestation.

3. Treatment

The treatment of choice is permethrin cream 5%. The cream should be massaged thoroughly into the skin from the hairline and ears to the soles of the feet, avoiding the eyes, nose and mouth). The cream should be removed by washing (shower or bath) 8-14 hours after application. The cream is applied once and may be repeated seven (7) days later.

Treated employees may return to work twenty-four (24) hours after the initial application. Itching may persist for two to three weeks (and occasionally five or six weeks) and should not be taken as an indication of failed treatment. If itching persists beyond this time, the employee should be re-evaluated. New lesions may represent the body's immune response or re-infestation, however all new lesions should be evaluated. For pregnant women and nursing mothers the risk of occupational exposure should be weighed against the risks of treatment.

For those sensitive to permethrin cream (including those with severe formaldehyde allergy or allergies to chrysanthemums or pyrethroids) alternative treatments include crotamiton, or tetraethylthiuram monosulfide. Permethrin is preferred over gamma benzene hexachloride since it produces fewer side effects, toxicity and mites show less resistance. Under certain circumstances, Ivermectin (an oral medication) may be prescribed. This is usually considered in the setting of an immunocompromised host, failed multiple treatments, suspected resistance or a severe infestation.

4. Environmental Decontamination

Potentially contaminated clothing and bedding (those worn or slept in within the three (3) days before treatment) of the patient, exposed employee and their close household contacts should be machine washed in hot water and preferably dried at a temperature of at least 140 degrees

For clothing that cannot be washed, dry cleaning or placing in plastic bag and leaving undisturbed for 3 days will be effective.

Upholstered furniture, carpets, and surfaces made of plastic, metal or wood are generally not considered to be sources for infection. Vacuuming all carpets and upholstered furniture and wiping surfaces should suffice for household control.

IV. GUIDELINES FOR PATIENT CARE

The following recommendations are aimed at preventing exposure of health care providers to pediculosis and scabies.

A. *PATIENTS SUSPECTED OF OR CONFIRMED AS HAVING PEDICULOSIS OR SCABIES*

Should be placed on Contact Precautions until 24 hours after application of an appropriate pediculocide. Gloves and long sleeve gown should be worn for direct patient contact. Thorough washing of all health care provider skin surfaces that have contact (including forearms) is the primary means of preventing transmission to healthcare providers.

B. APPLICATION OF TOPICAL AGENT

1. For scabies,

Patient should first be bathed using soap and warm water. Apply cream or lotion in a thin layer over dry skin surface from hairline and ears down to the soles of the feet. Pay special attention to skin folds and creases, interdigital spaces, and genital area.

2. For head lice or pubic lice,

Apply the shampoo or lotion liberally to affected area for amount of time specified by package insert, then rinse thoroughly. The patient's comb/brush should be discarded and a new comb/brush used.

3. Additional nursing considerations

- a. Do not apply to open areas or acutely inflamed skin, or to eyes, mucous membranes, or urethral meatus.
- b. Notify physician immediately if skin irritation or hypersensitivity develops.
- c. In pregnant patients, patient's obstetrician should be consulted before treatment.
- d. Use caution in the treatment of infants and small children.
- e. Do not let infants or children suck thumb/fingers after application of medication.

4. Bed linen

Should be changed immediately after application of topical agent for bed patients and during shower for those patients who are able. Gloves and gown must be removed and discarded in regular trash, after use. Linen must be placed in a plastic laundry bag.

5. Nursing

Should notify patient's family. If possible, send patient's clothing home, and instruct as follows:

1. Launder bed linens and washable clothing in HOT water and dry in a hot dryer for at least 20 minutes. Place all non-washable personal clothes such as shoes, coats, jackets and scarves worn by the patient

during the preceding week in a plastic bag. Instruct family members to place clothes into a hot dryer for 20 minutes. If this is not possible, seal the plastic bag for 5-7 days.

2. Thoroughly vacuum carpets, upholstered furniture and mattresses.
3. Toys should be washed in hot water with soap if possible. Stuffed toys may be placed in a hot dryer for 20 minutes.
4. Wigs and hairpieces should be shampooed.

C. *PROCEDURE FOR EXPOSURE TO SCABIES OR LICE*

1. Non-Occupational Exposure

- a. The diagnosis and treatment of a non-occupational exposure to scabies or lice should be performed by the primary care provider of the Health Care Worker (HCW).
- b. A HCW who has been diagnosed with or treated for lice or scabies infection must report to Infection Control (353-4343).

2. Occupational Exposure

- a. When an occupational exposure occurs, Infection Control (353-4343) should be notified as soon as possible.
- b. Infection Control will review the source patient's medical record and notify units/ departments in which exposure may have occurred.
- c. Infection Control will provide those units/departments with information concerning signs and symptoms of scabies or pediculosis ([Scabies Fact Sheet](#)).
- d. Exposed health care providers will be referred to Occupational Health Services for diagnosis and treatment.
 1. Symptomatic health care workers (HCW) who have had direct skin to skin contact with a scabies infested patient identified by Infection Control may call Occupational Health Services for an appointment for evaluation, or may choose to see their primary health care provider. Persons with direct skin-to-skin contact with an infested patient are at risk. Staff who become infested may transmit it to their family members, intimate contacts, or other patients. Persons with direct skin contact with bed clothing, clothes, or other articles that have been in prolonged contact with the patient, are at lesser risk.

2. Occupational Health Services will provide risk assessment, examination for lesions and/or arrange consultation with Dermatology for diagnosis if indicated. All employees with undiagnosed rash or symptoms should be evaluated promptly by contacting Occupational Health Services at 885-7580 between the hours of 7:30 and 4:00 on weekdays or paging the Hotline at 719-3898 after hours. **Employees must avoid patient contact until they have been evaluated and received written clearance.** Occupational Health will coordinate any necessary referrals to Dermatology Clinic. If for any reason, there is difficulty reaching Occupational Health Services or the Hotline or the on-call Dermatologist may be paged at 443-9296. After hours or on long weekends, the hotline clinician will make an assessment and treat the employee as indicated. The on-call dermatologist will be consulted on an as needed basis. Employees that are treated by the hotline or by dermatology will be advised to follow-up with Occupational Health Services on the next business day.
3. HCWs requiring treatment based on evaluation will be given a prescription for medication and instructions for treatment.
4. Occupational Health Services will prescribe appropriate treatment for employees known to be at significant risk or with known or suspected infestation. Every attempt will be made to secure a definitive diagnosis prior to treatment. However, this must be balanced with staffing needs and the needs of the exposed employee as well. Employees with active or suspected infestation shall be treated and removed from direct patient contact until treatment is completed (24 hours after application of medication). All employees determined to be at significant risk* will be very strongly encouraged to undergo prophylactic treatment. Those who are at known to be at significant risk and are asymptomatic, but decline treatment, must be seen by Occupational Health Services to determine their ability to continue working and be counseled regarding the importance of treatment, as well as signs and symptoms of infestation.
5. HCWs will be instructed to inform household contact(s)/partner(s) of possible exposure to scabies.
* assessment of risk will be determined by a technical advisory group consisting of Occupational Health Services, Infection Control, Infectious Disease physicians and other stakeholders as deemed appropriate.

V. REFERENCES

1. *American J of Infection Control* 1982: 10 (4); p44A. *Communicable Disease Protocol: Scabies.*
2. *California Morbidity*, 11/30/90, No 47/48.
3. *Los Angeles County Public Health Letter* January 1987:9 (1). *Scabies in Health care Facilities*
4. *Herbert Laboratories Elimite cream (Permethrin 5%) fact sheet.*
5. *Control of Communicable Diseases in Man.* Beneneson, AS. 16th ed.
6. *Management of Scabies Outbreaks in Californian Health Care Facilites.* California Department of Health Services, Division of Communicable Disease Control. May 1999.
7. *The National Pediculosis Association;* <http://www.headlice.org/>
8. *Centers for Disease Control and Prevention;*
<http://www.cdc.gov/parasites/lice/index.html>
9. *Centers for Disease Control and Prevention;*
<http://www.cdc.gov/parasites/scabies/>

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